

Estell Manor School District Curriculum Science

Kindergarten

Standard Alignment September 2016
NJDOE Adoption Date September 2016
EMS BOE Approved 10/23/19

Philosophy

The performance expectations in kindergarten help students formulate answers to questions such as: “What happens if you push or pull an object harder? Where do animals live and why do they live there? What is the weather like today and how is it different from yesterday?” Kindergarten performance expectations include PS2, PS3, LS1, ESS2, ESS3, and ETS1 Disciplinary Core Ideas from the NRC Framework. Students are expected to develop understanding of patterns and variations in local weather and the purpose of weather forecasting to prepare for, and respond to, severe weather. Students are able to apply an understanding of the effects of different strengths or different directions of pushes and pulls on the motion of an object to analyze a design solution. Students are also expected to develop understanding of what plants and animals (including humans) need to survive and the relationship between their needs and where they live. The crosscutting concepts of patterns; cause and effect; systems and system models; interdependence of science, engineering, and technology; and influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. In the kindergarten performance expectations, students are expected to demonstrate grade-appropriate proficiency in asking questions, developing and using models, planning and carrying out investigations, analyzing and interpreting data, designing solutions, engaging in argument from evidence, and obtaining, evaluating, and communicating information. Students are expected to use these practices to demonstrate understanding of the core ideas.

Pacing Guide

Unit	Anticipated Timeframe
Unit 1: Engineering and Technology	15-20 Days (September)
Unit 2: Forces and Motion	30-40 Days (October-November)
Unit 3: Plants and Animals	30-40 Days (December-January)
Unit 4: Sun Warms Earth	30-40 Days (February-March)
Unit 5: Weather	30-40 Days (April-May)
Unit 6: Earth's Resource	15-20 Days (June)

Core Materials: Houghton Mifflin Harcourt Science Dimensions Textbook

Unit 1 will address the following 21st Century Life and Careers skills:				
21 st Century Themes			Career Ready Practices	
9.1	Personal Financial Literacy		√	CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers			CRP2. Apply appropriate academic and technical skills.
	Money Management			CRP3. Attend to personal health and financial well-being.
	Credit and Debt Management			CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing			CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer		√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility		√	CRP7. Employ valid and reliable research strategies.

	Insuring and Protecting			CRP8.Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation			CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness			CRP10. Plan education and career paths aligned to personal goals.
X	Career Exploration		√	CRP11. Use technology to enhance productivity.
X	Career Preparation		√	CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.
	D. Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
	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.

Unit 1: Science / Kindergarten Engineering and Technology	Duration: 15-20 Days (September)
Standards:	<p>K-2-ETS-1-1: Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.</p> <p>K-2-ETS1-2: Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</p>

	<p>K-2-ETS1-3: Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</p>
<p>Unit Summary: Students will be exposed to an introduction of engineering and science, as well as the practices of engineering. This unit has two lessons attached to it and should be completed in about 15-20 Days. They will be able to define a simple problem, ask questions, make a model, compare and test design solutions, and use sketches and model to communicate a solution to a problem.</p>	
<p>NJ Student Learning Standards:</p> <p style="text-align: center;">Interdisciplinary Skills</p> <p>Primary Interdisciplinary Connections: Infused within the unit are connections to the NJSLs for Mathematics, Language Arts</p> <p>RI.K.1 - With prompting and support, ask and answer questions about key details in a text.</p> <p>SL.K.3 - Ask and answer questions in order to seek help, get information, or clarify something that is not understood.</p> <p>K.MD.A.1 - Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.</p> <p>K.MD.A.2 - Directly compare two objects with a measurable attribute in common, to see which object has “more of”/”less of” the attribute, and describe the difference.</p> <p style="text-align: center;">Technology</p> <p>8.1.2.B.1 - Illustrate and communicate original ideas and stories using multiple digital tools and resources.</p> <p style="text-align: center;">21st Century Life and Career</p> <ul style="list-style-type: none"> ● CRP2. Apply appropriate academic and technical skills. ● CRP4. Communicate clearly and effectively and with reason. ● CRP5. Consider the environmental, social and economic impacts of decisions. 	

- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- 9.2 Career Awareness, Exploration, and Preparation- This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.

Essential Understanding	Essential Questions
<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> ● Engineers use observations and ask questions to identify solutions and problems ● During a design process engineers use observations and analyze situations to solve a problem 	<ul style="list-style-type: none"> ● What does an engineer do? ● How can we use a design process
Evidence of Student Learning	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p>	<p>Other Assessments</p>

- Design a coin sorter

Formative Assessments

- Teacher Observations
- Interactive Notebook
- Performance Assessments
- Exit Slips
- Response Cards
- Graphic Organizers

Summative Assessments

- Tests
- Quizzes
- Summary
- Labs
- Hands-On Activities

Benchmark Assessment

- Beginning of the Year Benchmark
- Mid-Year Benchmark
- End of the Year Benchmark

Alternative Assessments

- Teacher Observations
- Group Work/Class Work

Vocabulary

Problem/Solution/Engineer/Technology/Design Process/Model

Knowledge and Skills	
Content	Skills
<i>Students will know...</i> <ul style="list-style-type: none"> • What an engineer does • How they can use a design process 	<i>Students will be able to...</i> <ul style="list-style-type: none"> • 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. • Develop a simple model based on evidence to represent a proposed object or tool. • Analyze data from tests of an object or tool to determine if it works as intended.
Instructional Plan	
Suggested Activities	Resources
<ul style="list-style-type: none"> - Engineering Blocks - Unorganized Box (Problem and Solution) - What Shape is the Strongest? (Design Process) - Create a tool to reach something under a couch - Build an Airplane 	<ul style="list-style-type: none"> - www.brainpopjr.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
Literature	
<ul style="list-style-type: none"> - HMH Science Dimensions Textbook/Workbook 	

Websites	
	<ul style="list-style-type: none"> - www.brainpopjr.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
Modifications	
<p>Special Education Students / 504 <i>(These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan)</i> reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.</p> <p>English Language learners: <i>use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.</i></p> <p>Students at Risk of Failure: <i>Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.</i></p> <p>Gifted Students: <i>provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.</i></p> <p><i>*For additional modifications and accommodations, see below</i></p>	
English Language Learners	
<ul style="list-style-type: none"> ● Pre Teach vocabulary using visuals and gestures ● Chunk texts ● Graphic organizers ● Labeled pictures related to concept 	
Gifted and Talented	

- Higher level questioning
- Students design questions
- Higher level texts
- Choice of activity to extend learning
- Expose to sophisticated vocabulary

Basic Skills/Economically Disadvantaged/Students at Risk

- Provide small group instructions
- Pre-teach concepts
- Build background knowledge
- Daily Log

Special Education/504

- Follow all IEP modifications/504 plan
- Provide student with specific graphic organizers to help them note take about the different levels of government
- Provide opportunity to draw solution strategies
- Provide students with notes from the lesson and discussions
- Labeled pictures related to concepts

Unit 2 will address the following 21st Century Life and Careers skills:

Check all that apply 21st Century Themes		Career Ready Practices	
9.1	Personal Financial Literacy		CRP1. Act as a responsible and contributing citizen and employee.

	Income and Careers	√	CRP2. Apply appropriate academic and technical skills.
	Money Management		CRP3.Attend to personal health and financial well-being.
	Credit and Debt Management		CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing		CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer	√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility	√	CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting	√	CRP8.Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation		CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness		CRP10. Plan education and career paths aligned to personal goals.

X	Career Exploration		CRP11. Use technology to enhance productivity.
X	Career Preparation		CRP12. Work productively in teams while using cultural global competence.

Technology

	<p align="center">TECHNOLOGY STANDARDS</p> <p>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.</p>
	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.

Unit 2 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions. With guidance, plan and conduct an investigation in collaboration with peers. (K-PS2-1)</p> <p>Analyzing and Interpreting Data Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations. Analyze data from tests of an object or tool to determine if it works as intended. (K-PS2-2) ----- -----</p> <p>Connections to Nature of Science</p> <p>Scientific Investigations Use a Variety of Methods Scientists use different ways to study the world. (K-PS2-1)</p>	<p>PS2.A: Forces and Motion Pushes and pulls can have different strengths and directions. (KPS2-1),(K-PS2-2) Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. (K-PS2-1),(K-PS2-2)</p> <p>PS2.B: Types of Interactions When objects touch or collide, they push on one another and can change motion. (K-PS2-1)</p> <p>PS3.C: Relationship Between Energy and Forces A bigger push or pull makes things speed up or slow down more quickly. (secondary to K-PS2-1)</p> <p>ETS1.A: Defining Engineering Problems A situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems may have many acceptable solutions. (secondary to KPS2-2)</p>	<p>Cause and Effect Simple tests can be designed to gather evidence to support or refute student ideas about causes. (K-PS2- 1),(K-PS2-2)</p>

Unit 2: Science/Kindergarten	Duration: 30-40 Days (October-November)
Forces and Motion	
Standards:	<p>K-PS2-1: Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.</p> <p>K-PS2-2: Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.</p>
<p>Unit Summary: Students will be exposed to an introduction of forces and motion. This unit has two lessons attached to it and should be completed in about 30-40 Days. They will be able to plan and conduct an investigation, gather evidence, analyze data, and explore different forces.</p>	
NJ Student Learning Standards	
<p style="text-align: center;">Interdisciplinary Skills</p> <p>RI.K.1 - With prompting and support, ask and answer questions about key details in a text.</p> <p>SL.K.3 - Ask and answer questions in order to seek help, get information, or clarify something that is not understood.</p> <p>K.MD.A.1 - Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.</p> <p>K.MD.A.2 - Directly compare two objects with a measurable attribute in common, to see which object has “more of”/”less of” the attribute, and describe the difference.</p>	
<p style="text-align: center;">Technology</p> <p>8.1.2.B.1 - Illustrate and communicate original ideas and stories using multiple digital tools and resources.</p>	

21st Century Life and Careers Skills

- CRP2. Apply appropriate academic and technical skills.
- CRP6. Demonstrate creativity and innovation.
- CRP7. Employ valid and reliable research strategies.
- CRP8. Utilize critical thinking to make sense of problems.
- CRP11. Use technology to enhance productivity.
- 9.2 Career Awareness, Exploration, and Preparation- This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.

Essential Understandings	Essential Questions
<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> ● Scientists plan and conduct investigations to determine how changing the speed or direction of an object can affect its motion ● Scientists collect and analyze data to determine if a design solution works as planned to change an object's speed or direction with a push or a pull 	<ul style="list-style-type: none"> ● What is motion? ● How can we change the way things move?
Evidence of Student Learning	

<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p>	<p>Other Assessments</p>
<ul style="list-style-type: none"> ● A Game of Motion 	<p>Formative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Interactive Notebook ● Performance Assessments ● Exit Slips ● Response Cards ● Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> ● Tests ● Quizzes ● Summary ● Labs ● Hands-On Activities <p>Benchmark Assessment</p> <ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark <p>Alternative Assessments</p>

	<ul style="list-style-type: none"> ● Teacher Observations ● Participation Rubric ● Teacher Observations ● Group Work/Class Work
Vocabulary Motion/Speed/Direction/Force	
Knowledge and Skills	
Content	Skills
<i>Students will know...</i> <ul style="list-style-type: none"> ● What motion is ● How they can change the way things move 	<i>Students will be able to ...</i> <ul style="list-style-type: none"> ● Plan and conduct an investigation about the speed of objects ● Gather evidence to support or refute ideas about what causes motion ● Analyze data from test to determine if a tool works as intended ● Explore pushes and pulls of different strengths and their effect on objects
Instructional Plan	
Suggested Activities	Resources
<ul style="list-style-type: none"> - Use the playground equipment to test out “pushes” and “pulls” and record test results on worksheet. - Use a push and pull picture sort. 	<ul style="list-style-type: none"> - www.brainpopjr.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)

<ul style="list-style-type: none"> - Have toy cars come from opposite directions and crash into each other to view how the objects push on each other and collide and change directions. - Make a ramp to cause toy cars to go faster. - Create a marble track to cause the marble to change its direction, speed, and push another marble 	
<p style="text-align: center;">Literature</p> <ul style="list-style-type: none"> - HMH Science Dimensions Textbook/Workbook 	
<p style="text-align: center;">Websites</p> <ul style="list-style-type: none"> - www.brainpopjr.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts) 	
<p style="text-align: center;">Modifications</p> <p>Special Education Students / 504 <i>(These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan)</i> reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.</p>	

English Language learners: *use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.*

Students at Risk of Failure: *Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.*

Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

Suggested Options for Differentiation

English Language Learners

- Preview lessons
- Graphic organizers
- Pre-teach key vocabulary
- Labeled pictures
- Using tactile objects to relate to key ideas
- Build background knowledge
- Use visuals

Gifted and Talented

- Higher level questioning
- Students design questions
- Differentiated Assignments
- Choice board to extend learning

Basic Skills/Economically Disadvantaged/Students at Risk

- Highlight key words
- Summarize as you go
- Preview lessons
- Graphic organizers

Special Education/504

- Provide differentiated instruction as needed
- Follow all IEP modifications/504 plan
- Provide students with a study guide before a test or quiz to help them prepare
- Pre-teach and model strategies to learn and practice new vocabulary words pertaining to the unit

Unit 3 will address the following 21st Century Life and Careers skills:

21st Century Themes		Career Ready Practices	
9.1	Personal Financial Literacy	√	CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers		CRP2. Apply appropriate academic and technical skills.
	Money Management	√	CRP3. Attend to personal health and financial well-being.
	Credit and Debt Management	√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing	√	CRP5. Consider the environmental, social and economic impacts of decisions.

	Becoming a Critical Consumer		CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility		CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting		CRP8.Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation		CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness		CRP10. Plan education and career paths aligned to personal goals.
X	Career Exploration		CRP11. Use technology to enhance productivity.
X	Career Preparation		CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.

Unit 3 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Analyzing and Interpreting Data Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations. Use observations (firsthand or from media) to describe patterns in the natural world in	LS1.C: Organization for Matter and Energy Flow in Organisms All animals need food in order to live and grow. They obtain their food from plants or from other animals.	Patterns Patterns in the natural and human designed world can be observed and used as evidence. (K-LS1-1)

order to answer scientific questions. (K-LS1-1) ----- -----Connections to Nature of Science Scientific Knowledge is Based on Empirical Evidence Scientists look for patterns and order when making observations about the world. (K-LS1-1)		
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Unit 3: Science/Kindergarten Plants and Animals	Duration: 30-40 Days (December-January)
Standards: K-LS1-1: Use observations to describe patterns of what plants and animals (including humans) need to survive K-ESS2-2: Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs K-ESS3-1: Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live K-ESS3-3: Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment	
Unit Summary: Students will be exposed to an introduction of plants and animals. This unit has four lessons attached to it and should be completed in about 30-40 Days. They will be able to use observations to describe patterns, analyze data, use a model, use patterns, and construct an argument supported by evidence.	
NJ Student Learning Standards	
<p style="text-align: center;">Interdisciplinary Skills</p> W.K.1 - Use a combination of drawing, dictating, and writing to compose opinion pieces in which they tell a reader the topic or the name of the book they are writing about and state an opinion or preference about the topic or book.	

W.K.2 - Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.

W.K.7 - Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them).

SL.K.5 - Add drawings or other visual displays to descriptions as desired to provide additional detail.

K.MD.A.2 - Directly compare two objects with a measurable attribute in common, to see which object has “more of”/”less of” the attribute, and describe the difference.

Technology

8.1.2.B.1 - Illustrate and communicate original ideas and stories using multiple digital tools and resources.

21st Century Life and Career

- CRP1. Act as a responsible and contributing citizen and employee.
- CRP3. Attend to personal health and financial well-being.
- CRP4. Communicate clearly and effectively and with reason.
- CRP5. Consider the environmental, social and economic impacts of decisions.
- 9.2 Career Awareness, Exploration, and Preparation- This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.

Essential Understandings

Essential Questions

<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> ● Scientists use observations as evidence to explain what plants need to live and grow ● Scientists use observations as evidence to explain what animals need to live, grow, and thrive ● Scientists use models to explain where plants and animals live and that they are part of a system with parts that work together in the natural world ● Scientists use evidence to explain how plants and animals can change where they live to get what they need to live and grow 	<ul style="list-style-type: none"> ● What do plants need? ● What do animals need? ● Where do plants and animals live? ● How do plants and animals change their environment?
<p>Evidence of Student Learning</p>	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p> <ul style="list-style-type: none"> ● Animal Changes 	<p>Other Assessments</p> <p>Formative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Interactive Notebook ● Performance Assessments ● Exit Slips ● Response Cards ● Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> ● Tests ● Quizzes ● Summary ● Labs ● Hands-On Activities

	<p>Benchmark Assessment</p> <ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Group Work/Class Work
<p>Vocabulary</p> <p>Living things/nonliving things/shelter/desert/forest/pond/ocean/environment</p>	
<p>Knowledge and Skills</p>	
<p>Content</p>	<p>Skills</p>
<p><i>Students will know...</i></p> <ul style="list-style-type: none"> ● What plants need ● What animals need ● Where plants and animals live ● How plants and animals change their environment 	<p><i>Students will be able to ...</i></p> <ul style="list-style-type: none"> ● Use observations to describe patterns of what plants and animals need to survive ● Analyze data by collecting, recording, and sharing observations ● Use a model to show the relationship between the needs of different plants or animals and the places they live ● Use patterns as evidence to support claims

	<ul style="list-style-type: none"> Construct an argument supported by evidence for how plants and animals change the environment to survive
Instructional Plan	
<p>Suggested Activities</p> <ul style="list-style-type: none"> Use a baggie to put lima beans in on top of a wet paper towel and seal. Place on a window to view bean growth. Model a sunflower with all of its parts and use arrows to show movement of water and sunlight into and through the plant. Compare two plants; one exposed sunlight and one not exposed to sunlight Water one plant every day and another plant every other day (desert vs forest) Plan a park - design a park where both plants and animals can thrive 	<p>Resources</p> <ul style="list-style-type: none"> www.brainpopjr.com www.newsela.com (leveled texts) https://www.teachengineering.org/ www.readworks.org (leveled texts)
Literature	
<ul style="list-style-type: none"> HMH Dimensions textbook/workbook 	
Websites	
<ul style="list-style-type: none"> www.brainpopjr.com www.newsela.com (leveled texts) https://www.teachengineering.org/ www.readworks.org (leveled texts) 	

Modifications

Special Education Students / 504 *(These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan)* reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.

English Language learners: *use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.*

Students at Risk of Failure: *Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.*

Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

Suggested Options for Differentiation

English Language Learners

- Use cooperative learning
- Preview and explain new concepts and vocabulary
- Demonstrations
- Partner with a strong English speaking partner
- Extended time
- Chunk texts
- Highlight key words

Gifted and Talented

- Create an enhanced set of introductory activities (e.g. advance organizers, concept maps, concept puzzles)
- Provide options, alternatives and choices to differentiate and broaden the curriculum
- Organize and offer flexible small group learning activities
- Differentiate Assignments

Basic Skills/Economically Disadvantaged/Students at Risk	
<ul style="list-style-type: none"> ● Pre-teach vocabulary using visuals and gestures ● Chunk texts ● Highlight key words 	
Modifications/Accommodations	
Special Education/504	
<ul style="list-style-type: none"> ● Provide differentiated instruction as needed ● Follow all IEP modifications/504 plan ● Read directions, tests/quizzes, and classwork aloud in a small group, rewording as needed ● Allow students to verbalize before beginning an assignment ● Help students to plan projects and goals with the teacher before beginning the assignment ● Review concepts and important vocabulary from previous lessons before teaching new information ● Check for student understanding often with formal, informal, verbal, and nonverbal measures 	

Unit 4 will address the following 21st Century Life and Careers skills:				
21st Century Themes			Career Ready Practices	
9.1	Personal Financial Literacy		√	CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers			CRP2. Apply appropriate academic and technical skills.

	Money Management	√	CRP3.Attend to personal health and financial well-being.
	Credit and Debt Management	√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing	√	CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer		CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility		CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting		CRP8.Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation		CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness		CRP10. Plan education and career paths aligned to personal goals.

X	Career Exploration		CRP11. Use technology to enhance productivity.
X	Career Preparation		CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.
	D. Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
	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.

Unit 4 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Planning and Carrying Out Investigations</p> <p>Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions. Make observations (firsthand or from media) to collect data that can be used to make comparisons. (K-PS3-1)</p> <p>Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions. Use tools and materials provided to design and build a device that solves a specific problem or a solution to a specific problem. (K-PS3- 2) -----</p> <p>-----</p> <p>Connections to Nature of Science Scientific Investigations Use a Variety of Methods Scientists use different ways to study the world. (K-PS3-1)</p>	<p>PS3.B: Conservation of Energy and Energy Transfer</p> <p>Sunlight warms Earth’s surface. (K-PS3-1),(K-PS3-2)</p>	<p>Cause and Effect</p> <p>Events have causes that generate observable patterns. (K-PS3-1),(K-PS3-2)</p>

Unit 4: Science/Kindergarten Sun Warms Earth	Duration: 30-40 Days (February-March)
Unit Summary: Students will be exposed to an introduction of how the sun warms the earth. This unit has two lessons attached to it and should be completed in about 30-40 Days. They will be able to make observations, make observations to collect data, use tools and materials to build a device, and describe the causes that make observable patterns.	
Standards: K-PS3-1- Make observations to determine the effect of sunlight on Earth’s surface K-PS3-2- Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area. K-ESS2-1- Use and share observations of local weather conditions to describe patterns over time K-ESS3-2- Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather	
NJ Student Learning Standards	
<p style="text-align: center;">Interdisciplinary Skills</p> <p>RI.K.1 - With prompting and support, ask and answer questions about key details in a text.</p> <p>SL.K.3 - Ask and answer questions in order to seek help, get information, or clarify something that is not understood.</p> <p>K.MD.A.1 - Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.</p> <p>K.MD.B.3 - Classify objects into given categories; count the number of objects in each category and sort the categories by count.</p> <p style="text-align: center;">Technology</p> <p>8.1.2.B.1 - Illustrate and communicate original ideas and stories using multiple digital tools and resources.</p>	

21st Century Life and Career

- CRP1. Act as a responsible and contributing citizen and employee.
- CRP3. Attend to personal health and financial well-being.
- CRP4. Communicate clearly and effectively and with reason.
- CRP5. Consider the environmental, social and economic impacts of decisions.
- 9.2 Career Awareness, Exploration, and Preparation- This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.

Essential Understandings

Students will understand that...

- The sun warms the earth's surface
- They can protect themselves from the sun

Essential Questions

- How does the sun warm the earth?
- How can I protect myself from the sun?

Evidence of Student Learning

Performance Tasks: *Activities to provide evidence for student learning of content and cognitive skills.*

- Sun heating land and water

Other Assessments

Formative Assessments

- Teacher Observations
- Interactive Notebook
- Performance Assessments
- Exit Slips
- Response Cards
- Graphic Organizers

	<p>Summative Assessments</p> <ul style="list-style-type: none"> • Tests • Quizzes • Summary • Labs • Hands-On Activities <p>Benchmark Assessment</p> <ul style="list-style-type: none"> • Beginning of the Year Benchmark • Mid-Year Benchmark • End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> • Teacher Observations • Group Work/Class Work
<p>Vocabulary</p> <p>light/heat/shade</p>	
<p>Knowledge and Skills</p>	
<p>Content</p>	<p>Skills</p>
<p><i>Students will know....</i></p> <ul style="list-style-type: none"> • How the sun heats the earth • How they can protect themselves from the sun 	<p><i>Students will be able to ...</i></p> <ul style="list-style-type: none"> • Make observations to construct an evidence-based account of the effect of sunlight on Earth's surface

	<ul style="list-style-type: none"> ● Make observations to collect data that can be used to make comparisons ● Use tools and material provided to design and build a device that protects people from the sun ● Describe the causes that make observable patterns associated with the effect of sunlight on Earth's surface
Instructional Plan	
<p>Suggested Activities</p> <ul style="list-style-type: none"> ● Practice counting in order to read a thermometer. ● Have students walk outside and describe how they feel on a sunny day v. a cloudy day. ● Check the weather report daily. Discuss the different types of weather experiences and track the changes. ● Show patterns of weather by creating basic bar graphs. ● Watch TV weather reports and discuss the job of a meteorologist. ● Role play the job of a meteorologist within a dramatic play center. ● Draw picture/models depicting different types of weather. ● Pebbles on a plate (one in the shade and one in the sun) to compare how the sun heats the earth's surface ● Design and build a shelter to protect earth's surface from the sun 	<p>Resources</p> <ul style="list-style-type: none"> - www.brainpopjr.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
<p>Literature</p> <ul style="list-style-type: none"> - HMH Dimensions Textbook/Workbook 	
<p>Websites</p> <ul style="list-style-type: none"> - www.brainpopjr.com - www.newsela.com (leveled texts) 	

- <https://www.teachengineering.org/>
- www.readworks.org (leveled texts)

Modifications

Special Education Students / 504 (*These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan*) reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.

English Language learners: *use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.*

Students at Risk of Failure: *Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.*

Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

Suggested Options for Differentiation

English Language Learners

- Plan activities using role play and drama
- Have students present information with illustrations, comic strips, or other visual representations
- Use visuals
- Teacher check-ins
- Provide Word Wall

Gifted and Talented

- Organize and offer flexible small group learning activities
- Teach cognitive and methodological skills
- Use centers

- Organize integrated problem-solving simulations
- Propose interest-based extension activities

Basic Skills/Economically Disadvantaged/Students at Risk

- Graphic organizers
- Highlight key words
- Sentence starters
- Build background knowledge

Special Education/504

- Follow all IEP modifications/504 plan
- Provide visual aids to support concepts being taught
- Use anchor charts in the classroom to support the concepts being taught and to use to review these ideas in future lessons
- Use graphic organizers to help students organize important information from a lesson
- Reword Directions

Unit 5 will address the following 21st Century Life and Careers skills:

21st Century Themes		Career Ready Practices	
9.1	Personal Financial Literacy	√	CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers		CRP2. Apply appropriate academic and technical skills.

	Money Management	√	CRP3.Attend to personal health and financial well-being.
	Credit and Debt Management	√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing	√	CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer		CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility		CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting		CRP8.Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation		CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness		CRP10. Plan education and career paths aligned to personal goals.

X	Career Exploration		CRP11. Use technology to enhance productivity.
X	Career Preparation		CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.
	D. Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
	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.

Unit 5 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Analyzing and Interpreting Data Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations. Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (K-ESS2-1)</p> <p>Engaging in Argument from Evidence Engaging in argument from evidence in K–2 builds on prior experiences and progresses to comparing ideas and representations about the natural and designed world(s). Construct an argument with evidence to support a claim. (K-ESS2-2) ----- ----- Connections to Nature of Science</p> <p>Science Knowledge is Based on Empirical Evidence Scientists look for patterns and order when making observations about the world. (K-ESS2-1)</p>	<p>ESS2.D: Weather and Climate Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather and to notice patterns over time. (K-ESS2-1)</p> <p>ESS2.E: Biogeology Plants and animals can change their environment. (K-ESS2-2)</p> <p>ESS3.C: Human Impacts on Earth Systems Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things. (secondary to K-ESS2-2)</p>	<p>Patterns</p> <p>Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (K-ESS2-1)</p> <p>Systems and System Models Systems in the natural and designed world have parts that work together. (K-ESS2-2)</p>

<p>Unit 5: Science/Kindergarten</p> <p>Weather</p>	<p>Duration: 30-40 Days (April-May)</p>
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Unit Summary: Students will be exposed to an introduction of weather. This unit has four lessons attached to it and should be completed in about 30-40 Days. They will be able to use observations to describe things, explore observable patterns, use patterns as evidence, ask questions, and explore technologies.

Standards:

K-PS3-2- Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area

K-ESS2-1- Use and share observations of local weather conditions to describe patterns over time

K-ESS3-2- Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather

NJ Student Learning Standards

Interdisciplinary Skills

RI.K.1 - With prompting and support, ask and answer questions about key details in a text.

SL.K.3 - Ask and answer questions in order to seek help, get information, or clarify something that is not understood.

K.MD.A.1 - Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

K.MD.B.3 - Classify objects into given categories; count the number of objects in each category and sort the categories by count.

Technology

8.1.2.B.1 - Illustrate and communicate original ideas and stories using multiple digital tools and resources.

21st Century Life and Career

<ul style="list-style-type: none"> ● CRP1. Act as a responsible and contributing citizen and employee. ● CRP3. Attend to personal health and financial well-being. ● CRP4. Communicate clearly and effectively and with reason. ● CRP5. Consider the environmental, social and economic impacts of decisions. ● 9.2 Career Awareness, Exploration, and Preparation- This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements. 	
Essential Understandings	Essential Questions
<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> ● Weather patterns are observable ● Weather can be measured ● There are multiple kinds of severe weather ● Forecasts can help us 	<ul style="list-style-type: none"> ● How can we observe weather patterns? ● How can we measure weather? ● What are kinds of severe weather? ● How can forecasts help us?
Evidence of Student Learning	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p> <ul style="list-style-type: none"> ● Investigate local weather forecasts 	<p>Other Assessments</p> <p>Formative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Interactive Notebook ● Performance Assessments ● Exit Slips ● Response Cards ● Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> ● Tests ● Quizzes

	<ul style="list-style-type: none"> ● Summary ● Labs ● Hands-On Activities <p>Benchmark Assessment</p> <ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Participation Rubric ● Teacher Observations ● Group Work/Class Work
<p>Vocabulary</p> <p>Weather pattern/season/temperature/severe weather/weather forecast</p>	
<p>Knowledge and Skills</p>	
<p>Content</p>	<p>Skills</p>
<p><i>Students will know....</i></p> <ul style="list-style-type: none"> ● How they can observe weather patterns ● How they can measure weather ● What kinds of severe weather there are ● How forecasts can help them 	<p><i>Students will be able to ...</i></p> <ul style="list-style-type: none"> ● Use observations to describe different kinds of weather ● Explore observable weather patterns ● Use patterns as evidence to describe weather conditions ● Ask questions to find out about different kinds of weather

	<ul style="list-style-type: none"> ● Explore technologies meteorologists use to predict weather and severe weather conditions
Instructional Plan	
<p>Suggested Activities</p> <ul style="list-style-type: none"> ● Practice counting in order to read a thermometer. ● Use demonstration thermometer to learn that the red color symbolizes heat. ● Check the weather report daily. Discuss the different types of weather experiences and track the changes. ● Using a human like model, dress it appropriately for the specific weather. ● Watch TV weather reports and discuss the job of a meteorologist. ● Role play the job of a meteorologist within a dramatic play center. ● Draw picture/models depicting different types of weather. ● Act out different weather situations. ● Make an emergency preparedness kit (ie: Hurricane) and practice what to do during an emergency. 	<p>Resources</p> <ul style="list-style-type: none"> - www.brainpopjr.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
<p>Literature</p> <ul style="list-style-type: none"> - HMH Dimensions Textbook/Workbook 	
<p>Websites</p> <ul style="list-style-type: none"> - www.brainpopjr.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts) 	
Modifications	

Special Education Students / 504 *(These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan)* reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.

English Language learners: *use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.*

Students at Risk of Failure: *Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.*

Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

Suggested Options for Differentiation

English Language Learners

- Plan activities using role play and drama
- Use visuals
- Teacher check-ins
- Limit Number of Questions
- Speak Slowly

Gifted and Talented

- Use centers
- Organize integrated problem-solving simulations
- Propose interest-based extension activities
- Differentiate Assignments
- Differentiate Texts
- Complete Different Homework than peers

Basic Skills/Economically Disadvantaged/Students at Risk

- Graphic organizers
- Highlight key words
- Sentence starters

- Build background knowledge
- Increased parent communication

Special Education/504

- Follow all IEP modifications/504 plan
- Provide visual aids to support concepts being taught
- Provide manipulatives or the opportunity to draw solution strategies
- Allow students to verbalize before beginning an assignment
- Pre-Teach concepts
- Extended Time

Unit 6 will address the following 21st Century Life and Careers skills:

21st Century Themes		Career Ready Practices	
9.1	Personal Financial Literacy	√	CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers		CRP2. Apply appropriate academic and technical skills.
	Money Management	√	CRP3. Attend to personal health and financial well-being.
	Credit and Debt Management	√	CRP4. Communicate clearly and effectively and with reason.

	Planning, Saving, and Investing		√	CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer			CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility			CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting			CRP8.Utilize critical thinking to make sense of problems and persevere in solving them.

9.2	Career Awareness, Exploration, and Preparation			CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness			CRP10. Plan education and career paths aligned to personal goals.
X	Career Exploration			CRP11. Use technology to enhance productivity.
X	Career Preparation			CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.
	D. Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
	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.

Unit 6 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Asking Questions and Defining Problems</p> <p>Asking questions and defining problems in grades K–2 builds on prior experiences and progresses to simple descriptive</p>	<p>ESS3.A: Natural Resources</p> <p>Living things need water, air, and resources from the land, and they live in places that have the things they need.</p> <p>Humans use natural resources for</p>	<p>Cause and Effect</p> <p>Events have causes that generate observable patterns. (K-ESS3-2),(KESS3-3)</p>

<p>questions that can be tested. Ask questions based on observations to find more information about the designed world. (K-ESS3-2)</p> <p>Developing and Using Models Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, storyboard) that represent concrete events or design solutions. Use a model to represent relationships in the natural world. (K-ESS3-1)</p> <p>Obtaining, Evaluating, and Communicating Information Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information. Read grade-appropriate texts and/or use media to obtain scientific information to describe patterns in the natural world. (K-ESS3-2)</p> <p>Communicate solutions with others in oral and/or written forms using models and/or drawings that provide detail about scientific ideas. (K-ESS3-3)</p>	<p>everything they do. (K-ESS3-1)</p> <p>ESS3.B: Natural Hazards Some kinds of severe weather are more likely than others in a given region. Weather scientists forecast severe weather so that the communities can prepare for and respond to these events. (K-ESS3-2)</p> <p>ESS3.C: Human Impacts on Earth Systems Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things. (K-ESS3- 3)</p> <p>ETS1.A: Defining and Delimiting an Engineering Problem Asking questions, making observations, and gathering information are helpful in thinking about problems. (secondary to K-ESS3-2)</p> <p>ETS1.B: Developing Possible Solutions Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem’s solutions to other people. (secondary to K-ESS3-3)</p>	<p>Systems and System Models Systems in the natural and designed world have parts that work together. (K-ESS3-1)</p> <p>-----</p> <p>Connections to Engineering, Technology, and Applications of Science</p> <p>Interdependence of Science, Engineering, and Technology People encounter questions about the natural world every day. (K-ESS3-2)</p> <p>Influence of Engineering, Technology, and Science on Society and the Natural World People depend on various technologies in their lives; human life would be very different without technology. (K-ESS3- 2)</p>
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Unit 6: Science/Kindergarten Earth's Resources	Duration: 15-20 Days (June)
Unit Summary: Students will be exposed to an introduction of earth's resources. This unit has two lessons attached to it and should be completed in 15-20 Days. They will be able to use evidence to explain things, describe things, design and communicate, and identify different natural resources.	
Standards: K-LS1-1: Use observations to describe patterns of what plants and animals (including humans) need to survive K-ESS2-2: Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs K-ESS3-1: Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live K-ESS3-3: Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment	
NJ Student Learning Standards	
<p style="text-align: center;">Interdisciplinary Skills</p> <p>W.K.1 - Use a combination of drawing, dictating, and writing to compose opinion pieces in which they tell a reader the topic or the name of the book they are writing about and state an opinion or preference about the topic or book.</p> <p>W.K.2 - Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.</p> <p>W.K.7 - Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them).</p> <p>SL.K.5 - Add drawings or other visual displays to descriptions as desired to provide additional detail.</p>	

K.MD.A.2 -Directly compare two objects with a measurable attribute in common, to see which object has “more of”/” less of” the attribute, and describe the difference.

Technology

8.1.2.B.1 - Illustrate and communicate original ideas and stories using multiple digital tools and resources.

21st Century Life and Career

- CRP1. Act as a responsible and contributing citizen and employee.
- CRP3. Attend to personal health and financial well-being.
- CRP4. Communicate clearly and effectively and with reason.
- CRP5. Consider the environmental, social and economic impacts of decisions.
- 9.2 Career Awareness, Exploration, and Preparation- This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.

Essential Understandings	Essential Questions
<i>Students will understand that...</i> <ul style="list-style-type: none">● Natural resources are anything people can use from nature● We can save natural resources in many ways	<ul style="list-style-type: none">● What are natural resources?● How can we save natural resources?
Evidence of Student Learning	
Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i> <ul style="list-style-type: none">● Reuse a milk carton	Other Assessments Formative Assessments <ul style="list-style-type: none">● Teacher Observations● Interactive Notebook● Performance Assessments

	<ul style="list-style-type: none"> ● Exit Slips ● Response Cards ● Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> ● Tests ● Quizzes ● Summary ● Labs ● Hands-On Activities <p>Benchmark Assessment</p> <ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Group Work/Class Work
Vocabulary	
Natural resource/reduce/reuse/recycle	
Knowledge and Skills	
Content	Skills
<i>Students will know....</i> <ul style="list-style-type: none"> ● What natural resources are 	<i>Students will be able to ...</i> <ul style="list-style-type: none"> ● Identify air, water, rocks, and soil as natural resources

<ul style="list-style-type: none"> ● How they can save natural resources 	<ul style="list-style-type: none"> ● Use evidence to explain that living things need water, air, and resources from the land ● Describe how natural resources work as part of a system in the natural world ● Explain ways people use natural resources and the impact they have on the environment ● Design and communicate solutions to overcome negative impacts on the environment
Instructional Plan	
<p style="text-align: center;">Suggested Activities</p> <ul style="list-style-type: none"> ● Collect various clean recycle items and place in a large bag. Gather one clean trash can and 3 clean recycle bins and label bins <i>paper, plastic</i> and <i>glass</i>. Show students the recycle posters that illustrate the number system within a triangle shape to indicate whether to recycle or not. ● Have students pull a recycle item from the bag, look at the number in the triangle and decide it's a recycle item. If so, which recycle bin (glass, plastic or paper) should the item go in and if not, place in a trash can. ● Show videos of what happens to recycle items at the recycling facility and how recycled items become new items. 	<p style="text-align: center;">Resources</p> <ul style="list-style-type: none"> - www.brainpopjr.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
Literature	
<ul style="list-style-type: none"> - HMH Dimensions Textbook/workbook 	
Websites	
<ul style="list-style-type: none"> - www.brainpopjr.com - www.newsela.com (leveled texts) 	

- <https://www.teachengineering.org/>
- www.readworks.org (leveled texts)

Modifications

Special Education Students / 504 (*These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan*) reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.

English Language learners: *use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.*

Students at Risk of Failure: *Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.*

Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

Suggested Options for Differentiation

English Language Learners

- Use visuals
- Teacher check-ins
- Limit number of questions
- Modified Assignments
- Provide Word Wall

Gifted and Talented

- Organize and offer flexible small group learning activities
- Use centers
- Propose interest-based extension activities
- Create alternate projects or assignments that challenge thinking

- Differentiate test questions

Basic Skills/Economically Disadvantaged/Students at Risk

- Graphic organizers
- Highlight key words
- Frequent breaks
- Sentence starters
- Build background knowledge

Special Education/504

- Follow all IEP modifications/504 plan
- Provide visual aids to support concepts being taught
- Allow students to verbalize before beginning an assignment
- Use anchor charts in the classroom to support the concepts being taught and to use to review these ideas in future lessons
- Extended time
- Pre-Teach concepts

Estell Manor School District Curriculum Science

Grade 1

Standard Alignment September 2016

NJDOE Adoption Date September 2016

EMS BOE Approved 10/23/19

Philosophy

The performance expectations in first grade help students formulate answers to questions such as: “What happens when materials vibrate? What happens when there is no light? Students are expected to develop understanding of the relationship between sound and vibrating materials as well as between the availability of light and ability to see objects. The idea that light travels from place to place can be understood by students at this level through determining the effect of placing objects made with different materials in the path of a beam of light.

Pacing Guide

Unit	Anticipated Timeframe
Unit 1: Engineering and Technology	15-20 Days (September)
Unit 2: Sound	30-40 Days (October-November)
Unit 3: Light	30-40 Days (December-January)
Unit 4: Plant and Animal Structures	30-40 Days (February-March)

Unit 5: Living Things and Their Young	30-40 Days (April-May)
Unit 6: Objects and Patterns in the Sky	15-20 Days (June)

Core Materials: Houghton Mifflin Harcourt Science Dimensions Textbook

Unit 1 will address the following 21st Century Life and Careers skills:				
21st Century Themes			Career Ready Practices	
9.1	Personal Financial Literacy		√	CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers			CRP2. Apply appropriate academic and technical skills.
	Money Management			CRP3. Attend to personal health and financial well-being.
	Credit and Debt Management		√	CRP4. Communicate clearly and effectively and with reason.

	Planning, Saving, and Investing			CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer		√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility			CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting		√	CRP8.Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation		√	CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness			CRP10. Plan education and career paths aligned to personal goals.
X	Career Exploration			CRP11. Use technology to enhance productivity.
X	Career Preparation			CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.

Unit 1: Science / 1st Grade Engineering and Technology	Duration: 15-20 Days (September)
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Standards:

1-PS4-1: Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate

1-PS4-2: Make observations to construct an evidence-based account that objects in darkness can be seen only when illuminated

1-PS4-3: Plan and conduct investigations to determine the effect of placing objects made with different materials in the path of a beam of light

1-PS4-4: Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance

Unit Summary: Students will be exposed to engineering and technology. This unit has two lessons attached to it and should be completed in about 15-20 Days. They will be able to define and identify problems, define and identify examples of technology, describe how people understand problems and use technology to solve problems, and explore and apply a design process

NJ Student Learning Standards:

Interdisciplinary Skills

Primary Interdisciplinary Connections: Infused within the unit are connections to the NJSLs for Mathematics, Language Arts

SL.1.1.A - Follow agreed-upon norms for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).

SL.1.1.B - Build on others' talk in conversations by responding to the comments of others through multiple exchanges.

SL.1.1.C - Ask questions to clear up any confusion about the topics and texts under discussion.

SL.1.3 - Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.

Technology

8.1.2. A.5 - Demonstrate the ability to navigate in developmentally appropriate virtual environments.

21st Century Life and Career

- CRP1. Act as a responsible and contributing citizen and employee.
- 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.
- CRP9. Model integrity, ethical leadership and effective management.

Essential Understanding	Essential Questions
<p><i>Students will understand that...</i></p> <ul style="list-style-type: none">● Engineers use technology in different ways● Engineers solve different problems	<ul style="list-style-type: none">● How do engineers use technology?● How can we solve a problem?
Evidence of Student Learning	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p>	<p>Other Assessments</p>

- Pocket-Lock It - Design a way to keep things from falling out of your pocket

Formative Assessments

- Teacher Observations
- Interactive Notebook
- Performance Assessments
- Exit Slips
- Response Cards
- Graphic Organizers

Summative Assessments

- Tests
- Quizzes
- Summary
- Labs
- Hands-On Activities

Benchmark Assessment

- Beginning of the Year Benchmark
- Mid-Year Benchmark
- End of the Year Benchmark

Alternative Assessments

- Teacher Observations
- Group Work/Class Work

Vocabulary

engineer/problem/solution/technology/design process

Knowledge and Skills	
Content	Skills
<i>Students will know...</i> <ul style="list-style-type: none"> • How engineers use technology • How engineers solve problems 	<i>Students will be able to...</i> <ul style="list-style-type: none"> • Define and identify problems • Define and identify examples of technology • Describe how people understand problems and use technology to solve problems • Explore and apply a design process
Instructional Plan	
Suggested Activities	Resources
<ul style="list-style-type: none"> - Keep headphones from tangling - Prevent a cat from scratching furniture 	<ul style="list-style-type: none"> - www.brainpopjr.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
Literature	
<ul style="list-style-type: none"> - HMH Science Dimensions Textbook/Workbook 	
Websites	

	<ul style="list-style-type: none"> - www.brainpopjr.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
<p style="text-align: center;">Modifications</p> <p>Special Education Students / 504 <i>(These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan)</i> reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.</p> <p>English Language learners: <i>use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.</i></p> <p>Students at Risk of Failure: <i>Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.</i></p> <p>Gifted Students: <i>provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.</i></p> <p><i>*For additional modifications and accommodations, see below</i></p>	
<p>English Language Learners</p> <ul style="list-style-type: none"> ● Pre Teach vocabulary using visuals and gestures ● Chunk texts ● Graphic organizers ● Labeled pictures related to concept 	
<p>Gifted and Talented</p>	

- Higher level questioning
- Students design questions
- Higher level texts
- Choice of activity to extend learning
- Expose to sophisticated vocabulary

Basic Skills/Economically Disadvantaged/Students at Risk

- Provide small group instructions
- Pre-teach concepts
- Build background knowledge
- Daily Log

Special Education/504

- Follow all IEP modifications/504 plan
- Provide student with specific graphic organizers to help them note take about the different levels of government
- Provide opportunity to draw solution strategies
- Provide students with notes from the lesson and discussions
- Labeled pictures related to concepts

Unit 2 will address the following 21st Century Life and Careers skills:

Check all that apply 21st Century Themes				Career Ready Practices	
9.1	Personal Financial Literacy				CRP1.Act as a responsible and contributing citizen and employee.

	Income and Careers	√	CRP2. Apply appropriate academic and technical skills.
	Money Management		CRP3. Attend to personal health and financial well-being.
	Credit and Debt Management	√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing		CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer	√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility		CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting	√	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation		CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness		CRP10. Plan education and career paths aligned to personal goals.

X	Career Exploration			CRP11. Use technology to enhance productivity.
X	Career Preparation		√	CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.
	D. Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.

	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.

Unit 2 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Planning and Carrying Out Investigations</p> <p>Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions. Plan and conduct investigations collaboratively to produce data to serve as the basis for evidence to answer a question. (1-PS4-1),(1-PS4-3)</p> <p>Constructing Explanations and Designing Solutions</p> <p>Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions. Make observations (firsthand or from</p>	<p>PS4.A: Wave Properties Sound can make matter vibrate, and vibrating matter can make sound. (1-PS4-1)</p> <p>PS4.B: Electromagnetic Radiation Objects can be seen if light is available to illuminate them or if they give off their own light. (1-PS4-2) Some materials allow light to pass through them, others allow only some light through and others block all the light and create a dark shadow on any surface beyond them, where the light cannot reach. Mirrors can be used to redirect a light beam. (Boundary: The idea that light travels from place to place is developed through experiences with light sources, mirrors, and shadows, but no attempt is made to discuss the speed of light.) (1- PS4-3)</p> <p>PS4.C: Information Technologies and Instrumentation People also use a variety</p>	<p>Cause and Effect Simple tests can be designed to gather evidence to support or refute student ideas about causes. (1-PS4-1),(1-PS4-2),(1-PS4-3) -----</p> <p>----- Connections to Engineering, Technology, and Applications of Science</p> <p>Influence of Engineering, Technology, and Science, on Society and the Natural World People depend on various technologies in their lives; human life would be very different without technology. (1-PS4-4)</p>

media) to construct an evidence-based account for natural phenomena. (1- PS4-2) Use tools and materials provided to design a device that solves a specific problem. (1- PS4-4) ----- -----Connections to Nature of Science Scientific Investigations Use a Variety of Methods Science investigations begin with a question. (1-PS4-1) Scientists use different ways to study the world. (1-PS4-1)	of devices to communicate (send and receive information) over long distances. (1- PS4-4)	
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Unit 2: Science/1st Grade	Duration: 30-40 Days (October-November)
Sound	
Standards:	1-PS4-1 Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate 1-PS4-4 Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance
Unit Summary: Students will be exposed to sound. This unit has two lessons attached to it and should be completed in about 15-20 Days. They will be able to explore relationships, compare and contrast, investigate, identify, and explore how technology is used.	
NJ Student Learning Standards	
<p style="text-align: center;">Interdisciplinary Skills</p> <p>Primary Interdisciplinary Connections: Infused within the unit are connections to the NJSLs for Mathematics, Language Arts</p> <p>SL.1.1.A - Follow agreed-upon norms for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).</p>	

SL.1.1.B - Build on others' talk in conversations by responding to the comments of others through multiple exchanges.

SL.1.1.C - Ask questions to clear up any confusion about the topics and texts under discussion.

SL.1.3 - Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.

Technology

8.1.2. A.5 - Demonstrate the ability to navigate in developmentally appropriate virtual environments.

21st Century Life and Careers Skills

- CRP2. Apply appropriate academic and technical skills.
- 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.
- 9.2 Career Awareness, Exploration, and Preparation- This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.

Essential Understandings	Essential Questions
<p><i>Students will understand that...</i></p> <ul style="list-style-type: none">● Sound is a kind of energy you hear when something vibrates	<ul style="list-style-type: none">● What is sound?● How can we communicate with sound?

<ul style="list-style-type: none"> You can share information using sound 	
Evidence of Student Learning	
Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i>	Other Assessments
<ul style="list-style-type: none"> Explore sound - humming, playing kazoos, and play music through a speaker to make a connection between vibrations and sound 	<p>Formative Assessments</p> <ul style="list-style-type: none"> Teacher Observations Interactive Notebook Performance Assessments Exit Slips Response Cards Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> Tests Quizzes Summary Labs Hands-On Activities <p>Benchmark Assessment</p>

	<ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Participation Rubric ● Teacher Observations ● Group Work/Class Work
<p style="text-align: center;">Vocabulary</p> <p style="text-align: center;">sound/vibrate/volume/pitch/communicate</p>	
<p style="text-align: center;">Knowledge and Skills</p>	
Content	Skills
<p><i>Students will know...</i></p> <ul style="list-style-type: none"> ● What sound is ● How you can communicate with sound 	<p><i>Students will be able to ...</i></p> <ul style="list-style-type: none"> ● Explore the relationship between sound and vibration ● Compare the volume and the pitch of different sounds ● Investigate how sound makes materials move ● Identify ways people communicate using sound ● Explore how technology is used to help people communicate with sound over distances
<p style="text-align: center;">Instructional Plan</p>	
Suggested Activities	Resources

<ul style="list-style-type: none"> - Draw pictures of things that make light or sound. - Take a listening walk in and around the building. - Make a kazoo or paper cup telephone. - - Make instruments out of recyclable items. - Use tuning forks to make sounds of various pitches. - Make something move with sound (rice on a bowl) - Blow a whistle and then create something that will amplify that sound 	<ul style="list-style-type: none"> - www.brainpopjr.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
Literature	
<ul style="list-style-type: none"> - HMH Science Dimensions Textbook/Workbook 	
Websites	
<ul style="list-style-type: none"> - www.brainpopjr.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ 	

- www.readworks.org (leveled texts)

Modifications

Special Education Students / 504 (*These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan*) reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.

English Language learners: *use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.*

Students at Risk of Failure: *Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.*

Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

Suggested Options for Differentiation

English Language Learners

- Preview lessons
- Labeled pictures
- Using tactile objects to relate to key ideas
- Build background knowledge
- Use visuals

Gifted and Talented

- Higher level questioning
- Students design questions
- Differentiated Assignments
- Choice board to extend learning
- Complete different homework problems than peers

Basic Skills/Economically Disadvantaged/Students at Risk

- Highlight key words
- Frequent breaks
- Preview lessons
- Graphic organizers

Special Education/504

- Provide differentiated instruction as needed
- Follow all IEP modifications/504 plan
- Provide students with a study guide before a test or quiz to help them prepare
- Pre-teach and model strategies to learn and practice new vocabulary words pertaining to the unit
- Modified assignments

Unit 3 will address the following 21st Century Life and Careers skills:

21st Century Themes		Career Ready Practices	
9.1	Personal Financial Literacy		CRP1.Act as a responsible and contributing citizen and employee.
	Income and Careers	√	CRP2. Apply appropriate academic and technical skills.
	Money Management		CRP3.Attend to personal health and financial well-being.

	Credit and Debt Management	√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing		CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer	√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility		CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting	√	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation		CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness		CRP10. Plan education and career paths aligned to personal goals.
X	Career Exploration		CRP11. Use technology to enhance productivity.
X	Career Preparation	√	CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.
	D. Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
	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.

Unit 3 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Planning and Carrying Out Investigations</p> <p>Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions. Plan and conduct investigations collaboratively to produce data to serve as the basis for evidence to answer a question. (1-PS4-1),(1-PS4-3)</p> <p>Constructing Explanations and Designing Solutions</p> <p>Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions. Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. (1- PS4-2) Use tools and materials provided to design a device that solves a specific problem. (1-PS4-4) -----</p> <p>-----Connections to Nature of Science</p> <p>Scientific Investigations Use a Variety of Methods Science investigations begin with a question. (1-PS4-1) Scientists use</p>	<p>PS4.A: Wave Properties Sound can make matter vibrate, and vibrating matter can make sound. (1-PS4-1)</p> <p>PS4.B: Electromagnetic Radiation</p> <p>Objects can be seen if light is available to illuminate them or if they give off their own light. (1-PS4-2) Some materials allow light to pass through them, others allow only some light through and others block all the light and create a dark shadow on any surface beyond them, where the light cannot reach. Mirrors can be used to redirect a light beam. (Boundary: The idea that light travels from place to place is developed through experiences with light sources, mirrors, and shadows, but no attempt is made to discuss the speed of light.) (1- PS4-3)</p> <p>PS4.C: Information Technologies and Instrumentation People also use a variety of devices to communicate (send and receive information) over long distances. (1- PS4-4)</p>	<p>Cause and Effect Simple tests can be designed to gather evidence to support or refute student ideas about causes. (1-PS4-1),(1-PS4-2),(1-PS4-3) -----</p> <p>----- Connections to Engineering, Technology, and Applications of Science Influence of Engineering, Technology, and Science, on Society and the Natural World People depend on various technologies in their lives; human life would be very different without technology. (1-PS4-4)</p>

different ways to study the world. (1-PS4-1)		
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Unit 3: Science/1st Grade Light	Duration: 30-40 Days (December-January)
Standards: 1-PS4-2 Make observations to construct an evidence-based account that objects in darkness can be seen only when illuminated 1-PS4-3 Plan and conduct investigations to determine the effect of placing objects made with different materials in the path of a beam of light 1-PS4-4 Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance	
Unit Summary: Students will be exposed to light. This unit has three lessons attached to it and should be completed in about 30-40 Days. They will be able to provide evidence based on observations, explain using evidence, explain and demonstrate, observe, and explore.	
NJ Student Learning Standards	
<p style="text-align: center;">Interdisciplinary Skills</p> <p>Primary Interdisciplinary Connections: Infused within the unit are connections to the NJSLS for Mathematics, Language Arts</p> <p>SL.1.1.A - Follow agreed-upon norms for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).</p> <p>SL.1.1.B - Build on others' talk in conversations by responding to the comments of others through multiple exchanges.</p>	

SL.1.1.C - Ask questions to clear up any confusion about the topics and texts under discussion.

SL.1.3 - Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.

Technology

8.1.2. A.5 - Demonstrate the ability to navigate in developmentally appropriate virtual environments.

21st Century Life and Career

- CRP2. Apply appropriate academic and technical skills.
- 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.
- 9.2 Career Awareness, Exploration, and Preparation- This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.

Essential Understandings

Students will understand that...

- Light helps us see
- Materials block light
- Light travels

Essential Questions

- How does light help us see?
- How do materials block light?
- How does light travel?

Evidence of Student Learning

<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p> <ul style="list-style-type: none"> ● Make a rainbow using water, a glass, white paper, and a bright light 	<p style="text-align: center;">Other Assessments</p> <p>Formative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Interactive Notebook ● Performance Assessments ● Exit Slips ● Response Cards ● Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> ● Tests ● Quizzes ● Summary ● Labs ● Hands-On Activities <p>Benchmark Assessment</p> <ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Group Work/Class Work
<p style="text-align: center;">Vocabulary</p> <p style="text-align: center;">light/shadow/reflect</p>	

Knowledge and Skills	
Content	Skills
<p><i>Students will know...</i></p> <ul style="list-style-type: none"> • How light helps them see • How materials block light • How light travels 	<p><i>Students will be able to ...</i></p> <ul style="list-style-type: none"> • Provide evidence, based on observations, of the relationship between the amount of light and how an object is seen • Explain, using evidence based on observations, why objects that give off their own light can be seen in the dark • Explain and demonstrate how different materials can allow different amounts of light to pass through • Explain how shadows are made • Observe that light shines in a straight line until it hits an object • Explore how reflection can be used to redirect light • Explore how technology is used to send and receive information using light
Instructional Plan	
Suggested Activities	Resources
<ul style="list-style-type: none"> - Draw pictures of things that make light or sound - Use flashlights to reflect light off of mirrors 	<ul style="list-style-type: none"> - www.brainpopjr.com

<ul style="list-style-type: none"> - Use flashlights to shine on various mediums to test for transparency - Use flashlights to make shadow puppets 	<ul style="list-style-type: none"> - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
Literature	
<ul style="list-style-type: none"> - HMH Dimensions textbook/workbook 	
Websites	
<ul style="list-style-type: none"> - www.brainpopjr.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts) 	
Modifications	
<p>Special Education Students / 504 <i>(These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan)</i> reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.</p> <p>English Language learners: <i>use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.</i></p> <p>Students at Risk of Failure: <i>Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.</i></p> <p>Gifted Students: <i>provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.</i></p>	
Suggested Options for Differentiation	
English Language Learners	

- Use cooperative learning
- Demonstrations
- Partner with a strong English speaking partner
- Extended time
- Limit number of questions
- Speak slowly
- Chunk information

Gifted and Talented

- Create an enhanced set of introductory activities (e.g. advance organizers, concept maps, concept puzzles)
- Provide options, alternatives and choices to differentiate and broaden the curriculum
- Organize and offer flexible small group learning activities
- Differentiate Assignments
- Complete different homework assignments than peers

Basic Skills/Economically Disadvantaged/Students at Risk

- Pre-teach vocabulary using visuals and gestures
- Chunk texts
- Highlight key words
- Frequent breaks

Modifications/Accommodations

Special Education/504

- Provide differentiated instruction as needed
- Follow all IEP modifications/504 plan
- Review concepts and important vocabulary from previous lessons before teaching new information
- Check for student understanding often with formal, informal, verbal, and nonverbal measures
- Progress Monitoring

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Unit 4 will address the following 21st Century Life and Careers skills:				
21st Century Themes			Career Ready Practices	
9.1	Personal Financial Literacy			CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers			CRP2. Apply appropriate academic and technical skills.
	Money Management		√	CRP3. Attend to personal health and financial well-being.
	Credit and Debt Management		√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing		√	CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer			CRP6. Demonstrate creativity and innovation.

	Civic Financial Responsibility	√	CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting		CRP8.Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation		CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness		CRP10. Plan education and career paths aligned to personal goals.
X	Career Exploration		CRP11. Use technology to enhance productivity.
X	Career Preparation		CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.
	D. Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
	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.

Unit 4 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Constructing Explanations and Designing Solutions</p> <p>Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions. Use materials to design a device that solves a specific problem or a solution to a specific problem. (1-LS1-1)</p>	<p>LS1.A: Structure and Function All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1)</p> <p>LS1.B: Growth and Development of Organisms Adult plants and animals can</p>	<p>Patterns Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (1-LS1-2)</p> <p>Structure and Function The shape and stability of structures of natural and designed objects are related to their function(s). (1-LS1-1) ----- ----- Connections to Engineering, Technology, and Applications of Science</p>

<p>Obtaining, Evaluating, and Communicating Information</p> <p>Obtaining, evaluating, and communicating information in K– 2 builds on prior experiences and uses observations and texts to communicate new information. Read grade-appropriate texts and use media to obtain scientific information to determine patterns in the natural world. (1-LS1-2) -----</p> <p>-----Connections to Nature of Science Scientific Knowledge is Based on Empirical Evidence Scientists look for patterns and order when making observations about the world. (1-LS1-2)</p>	<p>have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive. (1-LS1-2)</p> <p>LS1.D: Information Processing Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs. (1-LS1-1)</p>	<p>Influence of Engineering, Technology, and Science on Society and the Natural World Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world. (1-LS1-1)</p>
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<p>Unit 4: Science/1st Grade</p> <p>Plant and Animal Structures</p>	<p>Duration: 30-40 Days (February-March)</p>
<p>Unit Summary: Students will be exposed to plant and animal structures. This unit has four lessons attached to it and should be completed in about 30-40 Days. They will be able to describe, explain, relate, use evidence to describe, and use observations to design.</p>	
<p>Standards:</p> <p>1-LS1-1 Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs</p>	

NJ Student Learning Standards

Interdisciplinary Skills

SL.1.1.A - Follow agreed-upon norms for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).

SL.1.1.B - Build on others' talk in conversations by responding to the comments of others through multiple exchanges.

SL.1.1.C - Ask questions to clear up any confusion about the topics and texts under discussion.

SL.1.3 - Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.

Technology

8.1.2. A.5 - Demonstrate the ability to navigate in developmentally appropriate virtual environments.

21st Century Life and Career

- CRP3. Attend to personal health and financial well-being.
- CRP4. Communicate clearly and effectively and with reason.
- CRP5. Consider the environmental, social and economic impacts of decisions.
- CRP7. Employ valid and reliable research strategies.

Students will understand that...

- Certain plant parts help plants live
- Certain body parts help animals stay safe
- Certain body parts help animals meet their needs
- Plants and animals respond to their environment in different ways

- What parts help plants live?
- What body parts help animals stay safe?
- What body parts help animals meet their needs?
- How do plants and animals respond to their environment?

Evidence of Student Learning	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p> <ul style="list-style-type: none"> ● Research a favorite animal 	<p>Other Assessments</p> <p>Formative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Interactive Notebook ● Performance Assessments ● Exit Slips ● Response Cards ● Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> ● Tests ● Quizzes ● Summary ● Labs ● Hands-On Activities <p>Benchmark Assessment</p> <ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Group Work/Class Work
Vocabulary	

Mimic/gills/lungs/adaptation/environment	
Knowledge and Skills	
Content	Skills
<p><i>Students will know....</i></p> <ul style="list-style-type: none"> • What parts help plants live • What body parts help animals stay safe • What body parts help animals meet their needs • How plants and animals respond to their environment 	<p><i>Students will be able to ...</i></p> <ul style="list-style-type: none"> • Describe how parts of a plant help it to survive and grow • Explain how parts of an animal help it to survive and grow • Relate the shape and stability of structures to their functions • Use evidence to describe how plants and animals process and respond to information • Describe how human-made products are designed by applying knowledge of the natural world • Use observations to design a solution to a human problem by mimicking how plants use their parts to survive
Instructional Plan	
Suggested Activities	Resources
<ul style="list-style-type: none"> • Observe plants to design something that would keep you cool • Design a shoe to protect your feet from ice • Observe animals to design a new tool for picking up food 	<ul style="list-style-type: none"> - www.brainpopjr.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)

<p style="text-align: center;">Literature</p> <ul style="list-style-type: none"> - HMH Dimensions Textbook/Workbook
<p style="text-align: center;">Websites</p> <ul style="list-style-type: none"> - www.brainpopjr.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
<p style="text-align: center;">Modifications</p> <p>Special Education Students / 504 <i>(These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan)</i> reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.</p> <p>English Language learners: <i>use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.</i></p> <p>Students at Risk of Failure: <i>Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.</i></p> <p>Gifted Students: <i>provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.</i></p>
<p style="text-align: center;">Suggested Options for Differentiation</p>
<p>English Language Learners</p> <ul style="list-style-type: none"> ● Use visuals ● Teacher check-ins ● Provide Word Wall

Gifted and Talented <ul style="list-style-type: none"> ● Organize and offer flexible small group learning activities ● Teach cognitive and methodological skills ● Use centers
Basic Skills/Economically Disadvantaged/Students at Risk <ul style="list-style-type: none"> ● Graphic organizers ● Highlight key words ● Sentence starters
Special Education/504 <ul style="list-style-type: none"> ● Follow all IEP modifications/504 plan ● Provide visual aids to support concepts being taught ● Use graphic organizers to help students organize important information from a lesson ● Reword Directions

Unit 5 will address the following 21st Century Life and Careers skills:				
21st Century Themes			Career Ready Practices	
9.1	Personal Financial Literacy		√	CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers			CRP2. Apply appropriate academic and technical skills.

	Money Management	√	CRP3.Attend to personal health and financial well-being.
	Credit and Debt Management	√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing	√	CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer		CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility	√	CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting	√	CRP8.Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation		CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness		CRP10. Plan education and career paths aligned to personal goals.

X	Career Exploration			CRP11. Use technology to enhance productivity.
X	Career Preparation		√	CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.
	D. Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
	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.

Unit 5 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions. Use materials to design a device that solves a specific problem or a solution to a specific problem. (1-LS1-1)</p> <p>Obtaining, Evaluating, and Communicating Information Obtaining, evaluating, and communicating information in K– 2 builds on prior experiences and uses observations and texts to communicate new information. Read grade-appropriate texts and use media to obtain scientific information to determine patterns in the natural world. (1-LS1-2) ----- -----Connections to Nature of Science Scientific Knowledge is Based on Empirical Evidence Scientists look for patterns and order when making observations about the world. (1-LS1-2)</p>	<p>LS1.A: Structure and Function All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1)</p> <p>LS1.B: Growth and Development of Organisms Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive. (1-LS1-2)</p> <p>LS1.D: Information Processing Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs. (1-LS1-1)</p>	<p>Patterns Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (1-LS1-2)</p> <p>Structure and Function The shape and stability of structures of natural and designed objects are related to their function(s). (1-LS1-1) ----- ----- Connections to Engineering, Technology, and Applications of Science</p> <p>Influence of Engineering, Technology, and Science on Society and the Natural World Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world. (1-LS1-1)</p>

Unit 5: Science/1st Grade Living Things and Their Young	Duration: 30-40 Days (April-May)
Unit Summary: Students will be exposed to living things and their young. This unit has three lessons attached to it and should be completed in about 30-40 Days. They will be able to compare and contrast, observe patterns, and describe.	
Standards: 1-LS1-2 Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive 1-LS3-1 Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents	
NJ Student Learning Standards	
<p style="text-align: center;">Interdisciplinary Skills</p> <p>SL.1.1.A - Follow agreed-upon norms for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).</p> <p>SL.1.1.B - Build on others' talk in conversations by responding to the comments of others through multiple exchanges.</p> <p>SL.1.1.C - Ask questions to clear up any confusion about the topics and texts under discussion.</p> <p>SL.1.3 - Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.</p> <p style="text-align: center;">Technology</p> <p>8.1.2. A.5 - Demonstrate the ability to navigate in developmentally appropriate virtual environments.</p> <p style="text-align: center;">21st Century Life and Career</p> <ul style="list-style-type: none"> ● CRP3. Attend to personal health and financial well-being. 	

<ul style="list-style-type: none"> ● CRP4. Communicate clearly and effectively and with reason. ● CRP5. Consider the environmental, social and economic impacts of decisions. ● CRP7. Employ valid and reliable research strategies. ● CRP8. Utilize critical thinking to make sense of problems and persevere in solving them. ● CRP12. Work productively in teams while using cultural global competence. ● 9.2 Career Awareness, Exploration, and Preparation- This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements. 	
Essential Understandings	Essential Questions
<i>Students will understand that...</i> <ul style="list-style-type: none"> ● Plants look like their parents ● Animals look like their parents ● Animals take care of their young 	<ul style="list-style-type: none"> ● How do plants look like their parents? ● How do animals look like their parents? ● How do animals take care of their young?
Evidence of Student Learning	
Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i> <ul style="list-style-type: none"> ● Compare animals that are wild vs animals that live with people and how they care for their young 	Other Assessments <p>Formative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Interactive Notebook ● Performance Assessments ● Exit Slips ● Response Cards ● Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> ● Tests ● Quizzes

	<ul style="list-style-type: none"> ● Summary ● Labs ● Hands-On Activities <p>Benchmark Assessment</p> <ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Participation Rubric ● Teacher Observations ● Group Work/Class Work
<p>Vocabulary</p> <p>parent/offspring/trait/behavior</p>	
<p>Knowledge and Skills</p>	
Content	Skills
<p><i>Students will know....</i></p> <ul style="list-style-type: none"> ● That plants look like their parents ● That animals looks like their parents ● Animals take care of their young 	<p><i>Students will be able to ...</i></p> <ul style="list-style-type: none"> ● Compare young plants with parent plants ● Observe patterns to explain how plants of the same kind are alike and different ● Compare young animals with parent animals ● Observe patterns to explain how animals of the same kind are alike and different ● Describe how plants and animals respond to their environments to meet their needs

	<ul style="list-style-type: none"> Describe how behavior patterns of parents and offspring help offspring survive
Instructional Plan	
Suggested Activities <ul style="list-style-type: none"> Grow carrot tops to see how plants of the same kind are alike and different Observe brine shrimp to see if animals of the same kind look different from each other as they grow Research polar bears and lions to see how they learn from their parents 	Resources <ul style="list-style-type: none"> www.brainpopjr.com www.newsela.com (leveled texts) https://www.teachengineering.org/ www.readworks.org (leveled texts)
Literature	
<ul style="list-style-type: none"> HMH Dimensions Textbook/Workbook 	
Websites	
<ul style="list-style-type: none"> www.brainpopjr.com www.newsela.com (leveled texts) https://www.teachengineering.org/ www.readworks.org (leveled texts) 	
Modifications	
<p>Special Education Students / 504 <i>(These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan)</i> reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.</p> <p>English Language learners: <i>use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.</i></p> <p>Students at Risk of Failure: <i>Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.</i></p>	

Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

Suggested Options for Differentiation

English Language Learners

- Plan activities using role play and drama
- Use visuals
- Limit Number of Questions
- Speak Slowly

Gifted and Talented

- Differentiate Assignments
- Differentiate Texts
- Complete Different Homework than peers

Basic Skills/Economically Disadvantaged/Students at Risk

- Graphic organizers
- Build background knowledge
- Increased parent communication

Special Education/504

- Follow all IEP modifications/504 plan
- Provide manipulatives or the opportunity to draw solution strategies
- Pre-Teach concepts
- Extended Time

Unit 6 will address the following 21st Century Life and Careers skills:

21st Century Themes		Career Ready Practices	
9.1	Personal Financial Literacy	√	CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers		CRP2. Apply appropriate academic and technical skills.
	Money Management		CRP3. Attend to personal health and financial well-being.
	Credit and Debt Management	√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing	√	CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer	√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility		CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting	√	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

9.2	Career Awareness, Exploration, and Preparation			CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness			CRP10. Plan education and career paths aligned to personal goals.
X	Career Exploration		√	CRP11. Use technology to enhance productivity.
X	Career Preparation			CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.

	D. Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
	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.

Unit 6 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Planning and Carrying Out Investigations</p> <p>Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions. Make observations (firsthand or from media) to collect data that can be used to make comparisons. (1-ESS1-2)</p> <p>Analyzing and Interpreting Data</p> <p>Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations. Use observations (firsthand or from media) to</p>	<p>ESS1.A: The Universe and its Stars Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted. (1-ESS1-1)</p> <p>ESS1.B: Earth and the Solar System Seasonal patterns of sunrise and sunset can be observed, described, and predicted. (1-ESS1-2)</p>	<p>Patterns Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (1-ESS1-1),(1-ESS1-2) ----- ----- Connections to Nature of Science</p> <p>Scientific Knowledge Assumes an Order and Consistency in Natural Systems Science assumes natural events happen today as they happened in the past. (1-ESS1-1) Many events are repeated. (1-ESS1-1)</p>

describe patterns in the natural world in order to answer scientific questions. (1-ESS1-1)		
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Unit 6: Science/1st Grade	Duration: 15-20 Days (June)
Objects and Patterns in the Sky	
Unit Summary: Students will be exposed to an introduction of earth's resources. This unit has two lessons attached to it and should be completed in about 15-20 Days. They will be able to use evidence to explain things, describe things, design and communicate, and identify different natural resources.	
Standards:	
1-ESS1-1 Use observations of the sun, moon, and stars to describe patterns that can be predicted	
1-ESS1-2 Make observations at different times of year to relate the amount of daylight to the time of year	
NJ Student Learning Standards	
<p style="text-align: center;">Interdisciplinary Skills</p> <p>SL.1.1.A - Follow agreed-upon norms for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).</p> <p>SL.1.1.B - Build on others' talk in conversations by responding to the comments of others through multiple exchanges.</p> <p>SL.1.1.C - Ask questions to clear up any confusion about the topics and texts under discussion.</p> <p>SL.1.3 - Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.</p> <p style="text-align: center;">Technology</p> <p>8.1.2. A.5 -Demonstrate the ability to navigate in developmentally appropriate virtual environments.</p>	

21st Century Life and Career

- CRP1. Act as a responsible and contributing citizen and employee.
- CRP3. Attend to personal health and financial well-being.
- CRP4. Communicate clearly and effectively and with reason.
- CRP5. Consider the environmental, social and economic impacts of decisions.
- 9.2 Career Awareness, Exploration, and Preparation- This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.

Essential Understandings

Students will understand that...

- Objects in the sky seem to change
- There are different patterns of daylight

Essential Questions

- How do objects in the sky seem to change?
- What are patterns of daylight?

Evidence of Student Learning

Performance Tasks: *Activities to provide evidence for student learning of content and cognitive skills.*

- Explore the Moon's phases by creating a model

Other Assessments

Formative Assessments

- Teacher Observations
- Interactive Notebook
- Performance Assessments
- Exit Slips
- Response Cards
- Graphic Organizers

Summative Assessments

- Tests

	<ul style="list-style-type: none"> ● Quizzes ● Summary ● Labs ● Hands-On Activities <p>Benchmark Assessment</p> <ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Group Work/Class Work
<p>Vocabulary</p> <p>star/sun/moon/phases/season</p>	
<p>Knowledge and Skills</p>	
Content	Skills
<p><i>Students will know....</i></p> <ul style="list-style-type: none"> ● How objects in the sky seem to change ● Different patterns of daylight 	<p><i>Students will be able to ...</i></p> <ul style="list-style-type: none"> ● Identify and describe objects in the sky ● Use evidence to describe predictable patterns of the sun, moon, and stars ● Observe and model patterns of the moon's phases ● Use observations to describe characteristics of each season ● Predict patterns of change that take place from season to season

	<ul style="list-style-type: none"> ● Use observations to compare the amount of daylight from season to season ● Explore how seasons affect people and animals
Instructional Plan	
<p>Suggested Activities</p> <ul style="list-style-type: none"> ● Make a solar eclipse model ● Draw pictures of the sun, moon and stars. ● Make predictions about how the earth and moon move in the sky. ● Observe and measure the sun's position in the sky and how shadows change throughout the day. ● Make drawings of the four seasons and where the moon and sun will be positioned in the sky. ● Teach students about the phases of the moon, and make models using Oreo cookies. ● Observe patterns of a sunset 	<p>Resources</p> <ul style="list-style-type: none"> - www.brainpopjr.com - www.education.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
<p>Literature</p> <ul style="list-style-type: none"> - HMH Dimensions Textbook/workbook 	
<p>Websites</p> <ul style="list-style-type: none"> - www.brainpopjr.com - www.education.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts) 	
Modifications	

Special Education Students / 504 *(These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan)* reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.

English Language learners: *use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.*

Students at Risk of Failure: *Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.*

Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

Suggested Options for Differentiation

English Language Learners

- Use visuals
- Teacher check-ins
- Limit number of questions
- Provide Word Wall

Gifted and Talented

- Organize and offer flexible small group learning activities
- Create alternate projects or assignments that challenge thinking
- Differentiate test questions

Basic Skills/Economically Disadvantaged/Students at Risk

- Graphic organizers
- Highlight key words
- Frequent breaks
- Sentence starters

Special Education/504

- Follow all IEP modifications/504 plan
- Provide visual aids to support concepts being taught

- Allow students to verbalize before beginning an assignment
- Extended time

Estell Manor School District Curriculum Science

Grade 2

Standard Alignment September 2016

NJDOE Adoption Date September 2016

EMS BOE Approved 10/23/19

Philosophy

The performance expectations in second grade help students formulate answers to questions such as: How are materials similar and different from one another, and how do the properties of the materials relate to their use? How can materials be assembled or disassembled to change their purpose? How does land change and what are some things that cause it to change?

What are the different kinds of land and bodies of water? How many types of living things live in a place? Students will be able to construct an argument with evidence some change caused by heating and cooling can be reversed and some cannot. Second grade performance expectations include PS1, LS2, LS4, ESS1, ESS2, and ETS1 Disciplinary Core Ideas from the NRC

Framework. An understanding of observable properties of materials is developed by students at this level through analysis and classification of different materials. The crosscutting concepts of patterns; cause and effect; energy and matter; structure and function; stability and change; and influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. In the second grade performance expectations, students are expected to demonstrate grade appropriate proficiency in developing and using models, planning and carrying out investigations, analyzing and interpreting data, constructing explanations and designing solutions, engaging in argument from evidence, and obtaining, evaluating, and communicating information. Students are expected to use these practices to demonstrate understanding of the core ideas.

Pacing Guide

Unit	Anticipated Timeframe
Unit 1: Engineering Design Process	15-20 Days (September)

Unit 2: Matter	30-40 Days (October-December)
Unit 3: Environments for Living Things	30-40 Days (December-February)
Unit 4: Earth's Surface	30-40 Days (February-April)
Unit 5: Changes to Earth's Surface	30-40 Days (April-June)

Core Materials: Houghton Mifflin Harcourt Science Dimensions Textbook

Unit 1 will address the following 21st Century Life and Careers skills:				
21st Century Themes			Career Ready Practices	
9.1	Personal Financial Literacy			CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers			CRP2. Apply appropriate academic and technical skills.

	Money Management		CRP3.Attend to personal health and financial well-being.
	Credit and Debt Management		CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing		CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer	√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility		CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting	√	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation	√	CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness		CRP10. Plan education and career paths aligned to personal goals.
X	Career Exploration	√	CRP11. Use technology to enhance productivity.

X	Career Preparation	√	CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.

Unit 1 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Asking Questions and Defining Problems</p> <p>Asking questions and defining problems in K–2 builds on prior experiences and progresses to simple descriptive questions. Ask questions based on observations to find more information about the natural and/or designed world(s). (K2-ETS1-1)</p> <p>Define a simple problem that can be solved through the development of a new or improved object or tool. (K-2- ETS1-1)</p> <p>Developing and Using Models Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions. Develop a simple model based on evidence to represent a proposed object or tool. (K-2-ETS1-2)</p> <p>Analyzing and Interpreting Data</p> <p>Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations. Analyze data from tests of an object or tool to determine if it works as intended.</p>	<p>ETS1.A: Defining and Delimiting Engineering Problems A situation that people want to change or create can be approached as a problem to be solved through engineering. (K-2-ETS1-1)</p> <p>Asking questions, making observations, and gathering information are helpful in thinking about problems. (K-2-ETS1-1)</p> <p>Before beginning to design a solution, it is important to clearly understand the problem. (K-2-ETS1-1)</p> <p>ETS1.B: Developing Possible Solutions Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem’s solutions to other people. (K-2-ETS1-2)</p> <p>ETS1.C: Optimizing the Design Solution Because there is always more than one possible solution to a problem, it is useful to compare and test designs. (K-2-ETS1-3)</p>	<p>Structure and Function</p> <p>The shape and stability of structures of natural and designed objects are related to their function(s). (K-2- ETS1-2)</p>

(K-2-ETS1-3)		
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Unit 1: Science / 2nd Grade Engineering and Technology	Duration: 15-20 Days (September)
Standards: K-2-ETS-1-1: Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool. K-2-ETS1-2: Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem. K-2-ETS1-3: Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.	
Unit Summary: Students will be exposed to engineering and technology. This unit has two lessons attached to it and should be completed in 15-20 Days. They will be able to ask questions, make observations, and gather information to define a problem, use a design process to solve a problem, and compare and contrast.	
NJ Student Learning Standards: <p style="text-align: center;">Interdisciplinary Skills</p> <p>Primary Interdisciplinary Connections: Infused within the unit are connections to the NJSLs for Mathematics, Language Arts</p> <p>NJSLSA.SL2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.</p> <p>NJSLSA.W10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.</p>	

SL.2.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 2 topics and texts, building on others' ideas and expressing their own clearly

Technology

8.1.8.A.1 - Demonstrate knowledge of a real world problem using digital tools.

21st Century Life and Career

- CRP6. Demonstrate creativity and innovation.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP9. Model integrity, ethical leadership and effective management.
- CRP11. Use technology to enhance productivity.
- CRP12. Work productively in teams while using cultural global competence.

Essential Understanding	Essential Questions
<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> ● Engineers use a design process ● Engineers compare design solutions 	<ul style="list-style-type: none"> ● What is a design process? ● How can we compare design solutions?
Evidence of Student Learning	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p>	<p>Other Assessments</p>

<ul style="list-style-type: none"> ● Runaway Wagon - best way to keep a wagon from rolling away when you let go of its handle 	<p>Formative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Interactive Notebook ● Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> ● Tests ● Quizzes ● Hands-On Activities <p>Benchmark Assessment</p> <ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Group Work/Class Work
<p>Vocabulary</p> <p>engineer/design process/solution/strength/weakness</p>	
<p>Knowledge and Skills</p>	
<p>Content</p>	<p>Skills</p>
<p><i>Students will know...</i></p>	<p><i>Students will be able to...</i></p>

<ul style="list-style-type: none"> • What a design process is • How they can compare design solutions 	<ul style="list-style-type: none"> • Ask questions, make observations, and gather information to define a problem • Use a design process to solve a problem • Compare the strengths and weaknesses of multiple design solutions
Instructional Plan	
Suggested Activities	Resources
<ul style="list-style-type: none"> - Build a better lunchbox - Marshmallow design solution 	<ul style="list-style-type: none"> - www.brainpopjr.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
Literature	
<ul style="list-style-type: none"> - HMH Science Dimensions Textbook/Workbook 	
Websites	
	<ul style="list-style-type: none"> - www.brainpopjr.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/

	- www.readworks.org (leveled texts)
<p style="text-align: center;">Modifications</p> <p>Special Education Students / 504 <i>(These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan)</i> reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.</p> <p>English Language learners: <i>use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.</i></p> <p>Students at Risk of Failure: <i>Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.</i></p> <p>Gifted Students: <i>provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.</i></p> <p><i>*For additional modifications and accommodations, see below</i></p>	
<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 ● Less questions on a page for tests 	
<p>Gifted and Talented</p> <ul style="list-style-type: none"> ● Higher level questioning ● Students design questions ● Higher level texts ● Choice of activity to extend learning 	

<ul style="list-style-type: none"> ● Expose to sophisticated vocabulary ● Open ended questions to activate higher level thinking ● Enrichment opportunities to push assessment boundaries
Basic Skills/Economically Disadvantaged/Students at Risk <ul style="list-style-type: none"> ● Strategic grouping ● Pre-teach concepts ● Small group for assessments ● Check in's during experiments to help refocus ● Communication logs
Special Education/504 <ul style="list-style-type: none"> ● Follow all IEP modifications/504 plan ● Provide student with specific graphic organizers to help them note take about the different levels of government ● Provide opportunity to draw solution strategies ● Provide students with notes from the lesson and discussions ● Labeled pictures related to concepts ● Strategic grouping ● Pre-teach concepts ● Small group for assessments ● Check in's during experiments to help refocus

Unit 2 will address the following 21st Century Life and Careers skills:			
21st Century Themes		Career Ready Practices	
9.1	Personal Financial Literacy		CRP1.Act as a responsible and contributing citizen and employee.

	Income and Careers		CRP2. Apply appropriate academic and technical skills.
	Money Management		CRP3. Attend to personal health and financial well-being.
	Credit and Debt Management	√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing		CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer	√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility	√	CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting	√	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation		CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness		CRP10. Plan education and career paths aligned to personal goals.

X	Career Exploration		CRP11. Use technology to enhance productivity.
X	Career Preparation		CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.
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Unit 2 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Planning and Carrying Out Investigations</p> <p>Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions. Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. (2-PS1-1)</p> <p>Analyzing and Interpreting Data</p> <p>Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations. Analyze data from tests of an object or tool to determine if it works as intended. (2-PS1-2)</p> <p>Constructing Explanations and Designing Solutions</p> <p>Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of</p>	<p>PS1.A: Structure and Properties of Matter</p> <p>Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties. (2-PS1-1) Different properties are suited to different purposes. (2- PS1-2),(2-PS1-3) A great variety of objects can be built up from a small set of pieces. (2-PS1-3)</p> <p>PS1.B: Chemical Reactions</p> <p>Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not. (2-PS1-4)</p>	<p>Patterns</p> <p>Patterns in the natural and human designed world can be observed. (2-PS1-1)</p> <p>Cause and Effect</p> <p>Events have causes that generate observable patterns. (2-PS1-4) Simple tests can be designed to gather evidence to support or refute student ideas about causes. (2-PS1-2)</p> <p>Energy and Matter</p> <p>Objects may break into smaller pieces and be put together into larger pieces, or change shapes. (2-PS1-3) ----- ----- Connections to Engineering, Technology, and Applications of Science</p> <p>Influence of Engineering, Technology, and Science on Society and the Natural World</p> <p>Every human-made product is designed by applying some knowledge of the natural world and is built using</p>

<p>evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions. Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. (2-PS1-3)</p> <p>Engaging in Argument from Evidence Engaging in argument from evidence in K–2 builds on prior experiences and progresses to comparing ideas and representations about the natural and designed world(s). Construct an argument with evidence to support a claim. (2- PS1-4) ----- ---Connections to Nature of Science Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena Scientists search for cause and effect relationships to explain natural events. (2-PS1-4)</p>		<p>materials derived from the natural world. (2-PS1-2)</p>
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<p>Unit 2: Science/2nd Grade</p> <p>Matter</p>	<p>Duration: 30-40 Days (October-December)</p>
<p>Standards:</p> <p>2-PS1-1 Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties</p> <p>2-PS1-2 Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose</p>	

2-PS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs. Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object

2-PS1-4 Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot

Unit Summary: Students will be exposed to matter. This unit has four lessons attached to it and should be completed in about 30-40 Days. They will be able to describe and classify, select and use materials, use evidence to describe, and explore.

NJ Student Learning Standards

Interdisciplinary Skills

SL.2.1.A - Follow agreed-upon norms for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).

SL.2.1.B - Build on others' talk in conversations by linking their explicit comments to the remarks of others.

SL.2.1.C - Ask for clarification and further explanation as needed about the topics and texts under discussion.

Technology

8.8.2. A.4 - Create a document with text using a word processing program.

8.1.2. E.1 - Explore a problem / issue affecting children using digital tools and online resources and discuss possible solutions.

8.2.8. B.1 - Design and create a product using the design process that addresses a real world problem with specific criteria and constraints.

8.2.8. B.2 - Identify the design constraints and tradeoffs involved in designing a prototype, (how the prototype might fail, and how it might be improved) by completing a design problem and reporting results in a multimedia presentation.

8.2.8. B.3 - Solve a science-based design challenge and build a prototype using science and math principles throughout the design process.

9.1.4. B.1 - Participate in brainstorming sessions to seek information, ideas, and strategies that foster creative thinking.

21st Century Life and Careers Skills

- 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.

Essential Understandings	Essential Questions
<i>Students will understand that...</i> <ul style="list-style-type: none">● There are different properties of matter● Objects can be put together in different ways● Heating and cooling can change matter● Matter can change	<ul style="list-style-type: none">● What are properties of matter?● How are objects put together?● How do heating and cooling change matter?● How does matter change?
Evidence of Student Learning	
Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i>	Other Assessments
<ul style="list-style-type: none">● Explore melting by identifying the fastest way to cause ice to change to water	Formative Assessments <ul style="list-style-type: none">● Performance Assessments - explore melting● Exit Slips● Response Cards● Graphic Organizers Summative Assessments

	<ul style="list-style-type: none"> • Summary • Labs • Hands-On Activities <p>Benchmark Assessment</p> <ul style="list-style-type: none"> • Beginning of the Year Benchmark • Mid-Year Benchmark • End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> • Teacher Observations • Participation Rubric • Group Work/Class Work
<p>Vocabulary</p> <p>matter/property/solid/liquid/melt/freeze/reversible/irreversible</p>	
<p>Knowledge and Skills</p>	
Content	Skills
<p><i>Students will know...</i></p> <ul style="list-style-type: none"> • Different properties of matter • How objects are put together • How heating and cooling change matter • How matter changes 	<p><i>Students will be able to ...</i></p> <ul style="list-style-type: none"> • Describe and classify materials by their observable properties • Select and use materials based on these properties • Use evidence to describe how heating and cooling cause changes to matter

	<ul style="list-style-type: none"> ● Use evidence to describe reversible and irreversible changes to matter ● Explore how an object can be taken apart and its pieces used to make another object
Instructional Plan	
Suggested Activities	Resources
<ul style="list-style-type: none"> - Separate objects based on observable properties. - Work together to brainstorm a list of possible structures that could be built with different materials - Boil water in a kettle. Discuss how matter changes from liquid to gas. - Put a popsicle in the sun. Make predictions. Watch the solid become a liquid. Think/Pair/Share whether the liquid can become a solid again. - Place water on the counter. Predict what will happen if left there over long periods of time. Discuss where the heat came from that caused it to become a gas. - Create boats out of different materials. Talk about which worked, which did not, and why. 	<ul style="list-style-type: none"> - www.brainpopjr.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
Literature	
<ul style="list-style-type: none"> - HMH Science Dimensions Textbook/Workbook 	
Websites	

- www.brainpopjr.com
- www.newsela.com (leveled texts)
- <https://www.teachengineering.org/>
- www.readworks.org (leveled texts)

Modifications

Special Education Students / 504 (*These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan*) reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.

English Language learners: *use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.*

Students at Risk of Failure: *Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.*

Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

Suggested Options for Differentiation

English Language Learners

- Preview lessons
- Labeled pictures
- Use visuals

Gifted and Talented

- Higher level questioning
- Students design questions
- Differentiated Assignments
- Choice board to extend learning

Basic Skills/Economically Disadvantaged/Students at Risk

- Highlight key words
- Preview lessons
- Graphic organizers

Special Education/504

- Provide differentiated instruction as needed
- Follow all IEP modifications/504 plan
- Pre-teach and model strategies to learn and practice new vocabulary words pertaining to the unit
- Modified assignments

Unit 3 will address the following 21st Century Life and Careers skills:

21st Century Themes		Career Ready Practices	
9.1	Personal Financial Literacy		CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers	√	CRP2. Apply appropriate academic and technical skills.
	Money Management		CRP3. Attend to personal health and financial well-being.
	Credit and Debt Management		CRP4. Communicate clearly and effectively and with reason.

	Planning, Saving, and Investing		√	CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer			CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility			CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting		√	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation			CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness			CRP10. Plan education and career paths aligned to personal goals.
X	Career Exploration		√	CRP11. Use technology to enhance productivity.
X	Career Preparation			CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	B. Creativity and Innovation: Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.
	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.

Unit 3 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Developing and Using Models Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions. Develop a simple model based on evidence to represent a proposed object or tool. (2-LS2-2)</p>	<p>LS2.A: Interdependent Relationships in Ecosystems Plants depend on water and light to grow. (2-LS2-1) Plants depend on animals for pollination or to move their seeds around. (2-LS2-2)</p> <p>ETS1.B: Developing Possible Solutions Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in</p>	<p>Cause and Effect Events have causes that generate observable patterns. (2-LS2-1)</p> <p>Structure and Function The shape and stability of structures of natural and designed objects are related to their function(s). (2-LS2-2)</p>

<p>Planning and Carrying Out Investigations</p> <p>Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions. Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. (2-LS2-1)</p>	communicating ideas for a	
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<p>Unit 3: Science/2nd Grade</p> <p>Environments for Living Things</p>	<p>Duration: 30-40 Days (December-February)</p>
<p>Standards:</p> <p>2-LS2-1- Plan and conduct an investigation to determine if plants need sunlight and water to grow</p> <p>2-LS2-2- Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants</p> <p>2-LS4-1- Make observations of plants and animals to compare the diversity of life in different habitats</p>	
<p>Unit Summary: Students will be exposed to environments for living things. This unit has four lessons attached to it and should be completed in about 30-40 Days. They will be able to investigate, develop models, explore, and observe.</p>	
<p>NJ Student Learning Standards</p>	
<p>Interdisciplinary Skills</p> <p>SL.2.1.A - Follow agreed-upon norms for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).</p>	

SL.2.1.B - Build on others' talk in conversations by linking their explicit comments to the remarks of others.

SL.2.1.C - Ask for clarification and further explanation as needed about the topics and texts under discussion.

Technology

8.8.2. A.4 - Create a document with text using a word processing program.

8.1.2. B.1 - Illustrate and communicate original ideas and stories using digital tools and media-rich resources.

8.1.2. E.1 - Explore a problem / issue affecting children using digital tools and online resources and discuss possible solutions.

8.2.8. B.1 - Design and create a product using the design process that addresses a real world problem with specific criteria and constraints.

8.2.8. B.2 - Identify the design constraints and tradeoffs involved in designing a prototype, (how the prototype might fail, and how it might be improved) by completing a design problem and reporting results in a multimedia presentation.

8.2.8. B.3 - Solve a science-based design challenge and build a prototype using science and math principles throughout the design process.

9.1.4.B.1 - Participate in brainstorming sessions to seek information, ideas, and strategies that foster creative thinking.

21st Century Life and Career

- CRP2. Apply appropriate academic and technical skills.
- CRP5. Consider the environmental, social and economic impacts of decisions.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP11. Use technology to enhance productivity.

Essential Understandings

Essential Questions

<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> ● Plants need a number of things in order to survive ● Plants depend on animals ● A number of plants and animals live in water habitats ● A number of plants and animals live in land habitats 	<ul style="list-style-type: none"> ● What do plants need? ● How do plants depend on animals? ● What plants and animals live in water habitats? ● What plants and animals live in land habitats
<p>Evidence of Student Learning</p>	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p> <ul style="list-style-type: none"> ● Explore habitats by planning and conducting an investigation to find out how plants and animals get what they need in their habitat 	<p>Other Assessments</p> <p>Formative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Interactive Notebook ● Performance Assessments - explore habitats ● Exit Slips <p>Summative Assessments</p> <ul style="list-style-type: none"> ● Tests ● Hands-On Activities <p>Benchmark Assessment</p> <ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark <p>Alternative Assessments</p>

	<ul style="list-style-type: none"> ● Teacher Observations ● Group Work/Class Work
Vocabulary nutrient/pollen/habitat	
Knowledge and Skills	
Content	Skills
<i>Students will know...</i> <ul style="list-style-type: none"> ● What plants need in order to survive ● How plants depend on animals ● What plants and animals live in water habitats ● What plants and animals live in land habitats 	<i>Students will be able to ...</i> <ul style="list-style-type: none"> ● Investigate what plants and animals need to live and grow ● Develop models to show how plants depend on animals ● Explore environments to identify observable patterns ● Observable plants and animals to compare diversity of life in water habitats ● Observe plants and animals to compare diversity of life in land habitats
Instructional Plan	
Suggested Activities <ul style="list-style-type: none"> - Explore what a plant needs and what happens when it is placed in colored water - Make a model tool to pick up and move seeds - Make a tide pool model 	Resources <ul style="list-style-type: none"> - www.brainpopjr.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/

- Make a savanna habitat	- www.readworks.org (leveled texts)
Literature	
- HMH Dimensions textbook/workbook	
Websites	
<ul style="list-style-type: none"> - www.brainpopjr.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts) 	
Modifications	
<p>Special Education Students / 504 <i>(These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan)</i> reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.</p> <p>English Language learners: <i>use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.</i></p> <p>Students at Risk of Failure: <i>Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.</i></p> <p>Gifted Students: <i>provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.</i></p>	
Suggested Options for Differentiation	
<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
- Less questions on a page for tests

Gifted and Talented

- Create an enhanced set of introductory activities (e.g. advance organizers, concept maps, concept puzzles)
- Provide options, alternatives and choices to differentiate and broaden the curriculum
- Organize and offer flexible small group learning activities
- Differentiate Assignments
- Complete different homework assignments than peers
- Open ended questions to activate higher level thinking
- Higher level texts

Basic Skills/Economically Disadvantaged/Students at Risk

- Pre-teach vocabulary using visuals and gestures
- Chunk texts
- Highlight key words
- Frequent breaks
- Strategic grouping
- Pre-teach concepts
- Communication logs

Modifications/Accommodations

Special Education/504

- Provide differentiated instruction as needed
- Follow all IEP modifications/504 plan
- Review concepts and important vocabulary from previous lessons before teaching new information
- Check for student understanding often with formal, informal, verbal, and nonverbal measures
- Progress Monitoring
- Strategic grouping
- Pre-teach concepts
- Check in's during experiments to help refocus

Unit 4 will address the following 21st Century Life and Careers skills:

21st Century Themes		Career Ready Practices	
9.1	Personal Financial Literacy	√	CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers		CRP2. Apply appropriate academic and technical skills.
	Money Management		CRP3. Attend to personal health and financial well-being.
	Credit and Debt Management		CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing	√	CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer	√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility		CRP7. Employ valid and reliable research strategies.

	Insuring and Protecting			CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation		√	CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness			CRP10. Plan education and career paths aligned to personal goals.
X	Career Exploration			CRP11. Use technology to enhance productivity.
X	Career Preparation		√	CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	B. Creativity and Innovation: Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.
	D. Digital Citizenship: Students understand human, cultural, and societal issues related to technology and

	practice legal and ethical behavior.
	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.

Unit 4 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Developing and Using Models Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions. Develop a model to represent patterns in the natural world. (2-ESS2-2)</p> <p>Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions. Compare multiple solutions to a problem. (2-ESS2-1)</p>	<p>ESS2.A: Earth Materials and Systems Wind and water can change the shape of the land. (2- ESS2-1)</p> <p>ESS2.B: Plate Tectonics and Large-Scale System Interactions Maps show where things are located. One can map the shapes and kinds of land and water in any area. (2-ESS2- 2)</p> <p>ESS2.C: The Roles of Water in Earth’s Surface Processes Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form. (2-ESS2-3)</p> <p>ETS1.C: Optimizing the Design Solution Because there is always more than one possible solution to a problem, it is useful to compare and test designs. (secondary to</p>	<p>Patterns Patterns in the natural world can be observed. (2-ESS2-2),(2-ESS2-3)</p> <p>Stability and Change Things may change slowly or rapidly. (2- ESS2-1) -----</p> <p>Connections to Engineering, Technology, and Applications of Science</p> <p>Influence of Engineering, Technology, and Science on Society and the Natural World Developing and using technology has impacts on the natural world. (2-ESS2-1) -----</p> <p>----- Connections to Nature of Science</p> <p>Science Addresses Questions About the Natural and Material World Scientists study the natural and material world. (2-ESS2-1)</p>

Obtaining, Evaluating, and Communicating Information Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information. Obtain information using various texts, text features (e.g., headings, tables of contents, glossaries, electronic menus, icons), and other media that will be useful in answering a scientific question. (2-ESS2-3)	2-ESS2-1)	
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Unit 4: Science/2nd Grade	Duration: 30-40 Days
Earth's Surface	
Unit Summary: Students will be exposed to earth's surfaces. This unit has two lessons attached to it and should be completed in about 30-40 Days. They will be able to gather information and develop maps.	
Standards:	
2-ESS1-1 - Use information from several sources to provide evidence that Earth events can occur quickly or slowly.	
2-ESS2-1 - Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.	
2-ESS2-2 - Develop a model to represent the shapes and kinds of land and bodies of water in an area.	
2-ESS2-3 - Obtain information to identify where water is found on Earth and that it can be solid or liquid.	
NJ Student Learning Standards	
Interdisciplinary Skills	

SL.2.1.A - Follow agreed-upon norms for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).

SL.2.1.B - Build on others' talk in conversations by linking their explicit comments to the remarks of others.

SL.2.1.C - Ask for clarification and further explanation as needed about the topics and texts under discussion.

Technology

8.8.2.A.4 - Create a document with text using a word processing program.

8.1.2.E.1 - Explore a problem / issue affecting children using digital tools and online resources and discuss possible solutions.

8.2.8.B.1 - Design and create a product using the design process that addresses a real world problem with specific criteria and constraints.

8.2.8.B.2 - Identify the design constraints and tradeoffs involved in designing a prototype, (how the prototype might fail, and how it might be improved) by completing a design problem and reporting results in a multimedia presentation.

8.2.8.B.3 - Solve a science-based design challenge and build a prototype using science and math principles throughout the design process.

9.1.4.B.1 - Participate in brainstorming sessions to seek information, ideas, and strategies that foster creative thinking.

21st Century Life and Career

- CRP1. Act as a responsible and contributing citizen and employee.
- CRP5. Consider the environmental, social and economic impacts of decisions.
- CRP6. Demonstrate creativity and innovation.
- CRP9. Model integrity, ethical leadership and effective management.
- CRP12. Work productively in teams while using cultural global competence.

Essential Understandings	Essential Questions
<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> • There are different places on earth where water is found • Land and water can be mapped 	<ul style="list-style-type: none"> • Where is water found on earth? • How can we map land and water?
Evidence of Student Learning	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p> <ul style="list-style-type: none"> • Explore ocean water 	<p>Other Assessments</p> <p>Formative Assessments</p> <ul style="list-style-type: none"> • Teacher Observations • Interactive Notebook • Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> • Tests • Quizzes • Hands-On Activities <p>Benchmark Assessment</p> <ul style="list-style-type: none"> • Beginning of the Year Benchmark • Mid-Year Benchmark • End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> • Teacher Observations • Group Work/Class Work

<p style="text-align: center;">Vocabulary</p> <p style="text-align: center;">map/map title/map key/compass rose</p>	
<p style="text-align: center;">Knowledge and Skills</p>	
Content	Skills
<p><i>Students will know....</i></p> <ul style="list-style-type: none"> ● Where water is found on earth ● How to map land and water 	<p><i>Students will be able to ...</i></p> <ul style="list-style-type: none"> ● Gather information to identify where water is located on earth ● Develop maps to represent locations of land and water on earth
<p style="text-align: center;">Instructional Plan</p>	
Suggested Activities	Resources
<ul style="list-style-type: none"> ● Locate bodies of water by using a variety of resources to obtain information about bodies of water near where they live and make posters to share this information with their classmates ● Make a map of the classroom using a map title, map key, and compass rose 	<ul style="list-style-type: none"> - www.brainpopjr.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
<p style="text-align: center;">Literature</p> <ul style="list-style-type: none"> - HMH Dimensions Textbook/Workbook 	
<p style="text-align: center;">Websites</p> <ul style="list-style-type: none"> - www.brainpopjr.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ 	

- www.readworks.org (leveled texts)

Modifications

Special Education Students / 504 (*These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan*) reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.

English Language learners: *use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.*

Students at Risk of Failure: *Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.*

Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

Suggested Options for Differentiation

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

Gifted and Talented

- Organize and offer flexible small group learning activities
- Teach cognitive and methodological skills
- Use centers

Basic Skills/Economically Disadvantaged/Students at Risk

- Strategic grouping
- Pre-teach concepts
- Small group for assessments

- Check in's during experiments to help refocus
- Communication logs

Special Education/504

- Follow all IEP modifications/504 plan
- Provide visual aids to support concepts being taught
- Use graphic organizers to help students organize important information from a lesson
- Reword Directions
- Strategic grouping
- Pre-teach concepts
- Small group for assessments
- Check in's during experiments to help refocus

Unit 5 will address the following 21st Century Life and Careers skills:

21st Century Themes		Career Ready Practices	
9.1	Personal Financial Literacy	√	CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers		CRP2. Apply appropriate academic and technical skills.
	Money Management		CRP3. Attend to personal health and financial well-being.
	Credit and Debt Management		CRP4. Communicate clearly and effectively and with reason.

	Planning, Saving, and Investing	√	CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer	√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility		CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting		CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

9.2	Career Awareness, Exploration, and Preparation	√	CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness		CRP10. Plan education and career paths aligned to personal goals.
X	Career Exploration		CRP11. Use technology to enhance productivity.
X	Career Preparation	√	CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.
	D. Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
	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.

Unit 5 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.	ESS1.C: The History of Planet Earth Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe. (2-ESS1-1)	Stability and Change Things may change slowly or rapidly. (2-ESS1-1)

Make observations from several sources to construct an evidence-based account for natural phenomena. (2-ESS1-1)		
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Unit 5: Science/2nd Grade	Duration: 30-40 Days
Changes to Earth's Surface	
Unit Summary: Students will be exposed to changes to earth's surface. This unit has three lessons attached to it and should be completed in about 30-40 Days. They will be able to use evidence to explain and find solutions.	
Standards: 2-ESS1-1: Use information from several sources to provide evidence that Earth events can occur quickly or slowly 2-ESS2-1: Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land	
NJ Student Learning Standards	
<p style="text-align: center;">Interdisciplinary Skills</p> <p>SL.2.1.A - Follow agreed-upon norms for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).</p> <p>SL.2.1.B - Build on others' talk in conversations by linking their explicit comments to the remarks of others.</p> <p>SL.2.1.C - Ask for clarification and further explanation as needed about the topics and texts under discussion.</p> <p style="text-align: center;">Technology</p> <p>8.8.2.A.4 - Create a document with text using a word processing program.</p> <p>8.1.2.E.1 - Explore a problem / issue affecting children using digital tools and online resources and discuss possible solutions.</p>	

8.2.8.B.1 - Design and create a product using the design process that addresses a real world problem with specific criteria and constraints.

8.2.8.B.2 - Identify the design constraints and tradeoffs involved in designing a prototype, (how the prototype might fail, and how it might be improved) by completing a design problem and reporting results in a multimedia presentation.

8.2.8.B.3 - Solve a science-based design challenge and build a prototype using science and math principles throughout the design process.

9.1.4.B.1 - Participate in brainstorming sessions to seek information, ideas, and strategies that foster creative thinking.

21st Century Life and Career

- CRP1. Act as a responsible and contributing citizen and employee.
- CRP5. Consider the environmental, social and economic impacts of decisions.
- CRP6. Demonstrate creativity and innovation.
- CRP9. Model integrity, ethical leadership and effective management.
- CRP12. Work productively in teams while using cultural global competence.

Essential Understandings	Essential Questions
<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> ● There are changes on earth that happen slowly ● There are changes on earth that happen quickly ● There are ways to prevent wind and water from changing the land 	<ul style="list-style-type: none"> ● What changes on earth happen slowly? ● What changes on earth happen quickly ● How can we prevent wind and water from changing land?
Evidence of Student Learning	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p> <ul style="list-style-type: none"> ● Make a windbreak that will stop wind from changing the land 	<p>Other Assessments</p> <p>Formative Assessments</p> <ul style="list-style-type: none"> ● Performance Assessments

	<ul style="list-style-type: none"> ● Exit Slips ● Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> ● Quizzes ● Summary ● Hands-On Activities <p>Benchmark Assessment</p> <ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> ● Participation Rubric ● Teacher Observations ● Group Work/Class Work
<p style="text-align: center;">Vocabulary</p> <p style="text-align: center;">weathering/erosion/earthquake/volcano/landslide/hurricane/flood/windbreak/dike</p>	
<p style="text-align: center;">Knowledge and Skills</p>	
Content	Skills
<p><i>Students will know....</i></p> <ul style="list-style-type: none"> ● That there are changes on earth that happen slowly ● That there are changes on earth that happen quickly 	<p><i>Students will be able to ...</i></p> <ul style="list-style-type: none"> ● Use evidence to explain that some changes to earth happen slowly ● Use evidence to explain that some changes to earth happen quickly

<ul style="list-style-type: none"> ● That there are ways to prevent wind and water from changing the land 	<ul style="list-style-type: none"> ● Find solutions to prevent wind from changing the land ● Find solutions to prevent water from changing the land
Instructional Plan	
<p style="text-align: center;">Suggested Activities</p> <ul style="list-style-type: none"> ● How Can Water Change the Shape of Land? Students will make a sand tower and use water and a dropper to create and record changes. ● Wind Can Change the Shape of Land The class will make a sand tower and then the students will take turns blowing through straws and observe the changes. ● Preventing Wind Erosion Students will create a structure of blocks to prevent the wind from hitting a house. ● Model erosion by water ● Model quick changes on earth (floods) ● Prevent water from changing land 	<p style="text-align: center;">Resources</p> <ul style="list-style-type: none"> - www.brainpopjr.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
Literature	
<ul style="list-style-type: none"> - HMH Dimensions Textbook/Workbook 	
Websites	
<ul style="list-style-type: none"> - www.brainpopjr.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts) 	
Modifications	

Special Education Students / 504 *(These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan)* reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.

English Language learners: *use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.*

Students at Risk of Failure: *Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.*

Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

Suggested Options for Differentiation

English Language Learners

- Provide pictures and well labeled models
- Speak slowly and gesture when necessary
- Extended time on assessments
- Small group for assessment

Gifted and Talented

- Differentiate Assignments
- Differentiate Texts
- Complete Different Homework than peers

Basic Skills/Economically Disadvantaged/Students at Risk

- Graphic organizers
- Build background knowledge
- Increased parent communication
- Strategic grouping
- Pre-teach concepts
- Small group for assessments

Special Education/504

- Follow all IEP modifications/504 plan
- Provide manipulatives or the opportunity to draw solution strategies
- Pre-Teach concepts

- Extended Time
- Strategic grouping
- Small group for assessments
- Check in's during experiments to help refocus

Estell Manor School District Curriculum Science

Grade 3

Standard Alignment September 2016

NJDOE Adoption Date September 2016

EMS BOE Approved 10/23/19

Philosophy

The purpose of the Estell Manor School District Science Curriculum is to develop scientific understanding and civic efficacy (the readiness and willingness to assume citizenship responsibilities and to make informed and reasoned decisions for the public good as citizens). The New Jersey Student Learning Standards for Science reflect the belief that all students can and must learn enough science to assume their role as concerned citizens, equipped with necessary information and decision-making skills.

The need for scientific literacy in today's increasingly technological world, for fundamental reforms in how science is taught, and for established standards in science education are by now well-known and documented. Presidential appeals for excellence, combined with expressions of concern from scientists and educators, have led to national, state, and local initiatives. New Jersey is host to an impressive array of scientific and technological industries, and should play a leadership role in the development and implementation of standards for the teaching and learning of science.

Pacing Guide

Unit	Anticipated Timeframe
Unit 1: Engineering	15-20 Days (September)
Unit 2: Forces	30-40 Days (October-November)

Unit 3: Motion	30-40 Days (December-January)
Unit 4: Life Cycles and Inherited Traits	15-20 Days (February)
Unit 5: Organisms and Their Environments	30-40 Days (March-April)
Unit 6: Fossils	15-20 Days (May)
Unit 7: Weather and Patterns	15-20 Days (June)

Core Materials: Houghton Mifflin Harcourt Science Dimensions Textbook

Unit 1 will address the following 21st Century Life and Careers skills:	
21st Century Themes	Career Ready Practices

9.1	Personal Financial Literacy			CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers		√	CRP2. Apply appropriate academic and technical skills.
	Money Management			CRP3. Attend to personal health and financial well-being.
	Credit and Debt Management		√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing			CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer		√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility			CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting		√	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation		√	CRP9. Model integrity, ethical leadership and effective management.

X	Career Awareness			CRP10. Plan education and career paths aligned to personal goals.
X	Career Exploration		√	CRP11. Use technology to enhance productivity.
X	Career Preparation		√	CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.

	D. Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
	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.

Unit 1: Science / 3rd Grade Engineering and Technology	Duration: 15-20 Days (September)
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.	
Unit Summary: Students will be exposed to engineering in this unit. This unit has three lessons attached to it and should be completed in about 15-20 Days. They will be able to define problems, design solutions, test solutions, and make improvements to those solutions.	
NJ Student Learning Standards:	

Interdisciplinary Skills

Primary Interdisciplinary Connections: Infused within the unit are connections to the NJSLs for Mathematics, Language Arts

NJSLSA.SL2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.

NJSLSA.W10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

SL.3.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly

Technology

8.1.8.A.1 - Demonstrate knowledge of a real world problem using digital tools.

21st Century Life and Career

- CRP2. Apply appropriate academic and technical skills.
- 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.
- CRP9. Model integrity, ethical leadership and effective management.
- CRP11. Use technology to enhance productivity.
- CRP12. Work productively in teams while using cultural global competence.

Essential Understanding

Essential Questions

<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> Engineers define problems Engineers design solutions Engineers test and improve solutions 	<ul style="list-style-type: none"> How do we define a problem? How do we design a solution? How do we test and improve a solution?
Evidence of Student Learning	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p>	<p>Other Assessments</p>
<ul style="list-style-type: none"> Students will research and plan how they would design a new type of backpack that could protect its contents from getting wet 	<p>Formative Assessments</p> <ul style="list-style-type: none"> Teacher Observations Response Cards Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> Tests Quizzes Hands-On Activities <p>Benchmark Assessment</p> <ul style="list-style-type: none"> Beginning of the Year Benchmark

	<ul style="list-style-type: none"> • Mid-Year Benchmark • End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> • Teacher Observations • Group Work/Class Work
<p>Vocabulary</p> <p>constraint/criteria/engineer/technology</p>	
<p>Knowledge and Skills</p>	
Content	Skills
<p><i>Students will know...</i></p> <ul style="list-style-type: none"> • How to define a problem • How to design a solution to a problem • How to test and improve a solution 	<p><i>Students will be able to...</i></p> <ul style="list-style-type: none"> • Define problems and design solutions to those problems • Test solutions and make improvements to solutions

Instructional Plan	
Suggested Activities	Resources
<ul style="list-style-type: none"> - Backpacking trip supplies (must meet a certain weight limit) - Irrigation model - Prevent a skateboard wheel from coming off of a skateboard 	<ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts) - http://www.sps186.org/resources/sciencek5/?p=13475 - https://betterlesson.com/lesson/632399/animal-groups-benefits-and-disadvantages - http://www.livebinders.com/play/play?id=1179151#anchor - http://artsnowlearning.org/ - http://ngss-k-5-ausd.weebly.com/
Literature	
<ul style="list-style-type: none"> - HMH Science Dimensions Textbook/Workbook 	
Websites	
	<ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts) - http://www.sps186.org/resources/sciencek5/?p=13475 - https://betterlesson.com/lesson/632399/animal-groups-benefits-and-disadvantages

	<ul style="list-style-type: none"> - http://www.livebinders.com/play/play?id=1179151#anchor - http://artsnowlearning.org/ - http://ngss-k-5-ausd.weebly.com/
<p style="text-align: center;">Modifications</p> <p>Special Education Students / 504 <i>(These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan)</i> reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.</p> <p>English Language learners: <i>use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.</i></p> <p>Students at Risk of Failure: <i>Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.</i></p> <p>Gifted Students: <i>provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.</i></p> <p><i>*For additional modifications and accommodations, see below</i></p>	
<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 ● Less questions on a page for tests ● Modified Assignments 	
<p>Gifted and Talented</p> <ul style="list-style-type: none"> ● Higher level questioning 	

- Students design questions
- Higher level texts
- Peer tutoring
- Choice of activity to extend learning
- Expose to sophisticated vocabulary
- Open ended questions to activate higher level thinking
- Enrichment opportunities to push assessment boundaries

Basic Skills/Economically Disadvantaged/Students at Risk

- Strategic grouping
- Pre-teach concepts
- Small group for assessments
- Communication logs

Special Education/504

- Follow all IEP modifications/504 plan
- Provide student with specific graphic organizers to help them note take about the different levels of government
- Provide students with notes from the lesson and discussions
- Labeled pictures related to concepts
- Check in's during experiments to help refocus

Unit 2 will address the following 21st Century Life and Careers skills:

Unit 2 will address the following 21st Century Life and Careers skills:			
21st Century Themes		Career Ready Practices	
9.1	Personal Financial Literacy		CRP1. Act as a responsible and contributing citizen and employee.

	Income and Careers	√	CRP2. Apply appropriate academic and technical skills.
	Money Management		CRP3. Attend to personal health and financial well-being.
	Credit and Debt Management	√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing		CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer	√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility		CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting	√	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation	√	CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness		CRP10. Plan education and career paths aligned to personal goals.

X	Career Exploration		√	CRP11. Use technology to enhance productivity.
X	Career Preparation		√	CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.
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Unit 2 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Asking Questions and Defining Problems Asking questions and defining problems in grades 3–5 builds on grades K–2 experiences and progresses to specifying qualitative relationships. Ask questions that can be investigated based on patterns such as cause and effect relationships. (3-PS2-3) Define a simple problem that can be solved through the development of a new or improved object or tool. (3-PS2-4)</p> <p>Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions. 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. (3-PS2-1) Make observations and/or measurements to produce data to</p>	<p>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. (Boundary: Qualitative and conceptual, but not quantitative addition of forces are used at this level.) (3-PS2-1) 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.) (3-PS2-2)</p> <p>PS2.B: Types of Interactions Objects in contact exert forces on each other. (3-PS2-1) Electric, and magnetic forces between</p>	<p>Patterns Patterns of change can be used to make predictions. (3-PS2-2)</p> <p>Cause and Effect Cause and effect relationships are routinely identified. (3-PS2-1) Cause and effect relationships are routinely identified, tested, and used to explain change. (3-PS2-3) ----- ----- Connections to Engineering, Technology, and Applications of Science Interdependence of Science, Engineering, and Technology Scientific discoveries about the natural world can often lead to new and improved technologies, which are developed through the engineering design process. (3-PS2-4)</p>

<p>serve as the basis for evidence for an explanation of a phenomenon or test a design solution. (3-PS2-2) -----</p> <p>----- Connections to Nature of Science</p> <p>Science Knowledge is Based on Empirical Evidence Science findings are based on recognizing patterns. (3-PS2-2)</p> <p>Scientific Investigations Use a Variety of Methods</p> <p>Science investigations use a variety of methods, tools, and techniques. (3-PS2-1)</p>	<p>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. (3-PS2-3),(3-PS2-4)</p>	
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<p>Unit 2: Science/3rd Grade</p> <p>Forces</p>	<p>Duration: 30-40 Days (October-November)</p>
<p>Standards:</p> <p>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.</p> <p>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.</p> <p>3-PS2-4 - Define a simple design problem that can be solved by applying scientific ideas about magnets.</p>	
<p>Unit Summary: Students will be exposed to forces. This unit has three lessons attached to it and should be completed in about 30-40 Days. They will be able to explore how forces work, discover different types of forces, learn about forces that act from a distance.</p>	

NJ Student Learning Standards	
<p style="text-align: center;">Interdisciplinary Skills</p> <p>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.</p> <p>SL.3.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.</p> <p>SL.3.6. Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification.</p> <p style="text-align: center;">Technology</p> <p>8.1.5.E.1 - Use digital tools to research and evaluate the accuracy of, relevance to, and appropriateness of using print and non-print electronic information sources to complete a variety of tasks.</p> <p style="text-align: center;">21st Century Life and Careers Skills</p> <ul style="list-style-type: none"> ● CRP2. Apply appropriate academic and technical skills. ● 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. ● CRP9. Model integrity, ethical leadership and effective management. ● CRP11. Use technology to enhance productivity. ● CRP12. Work productively in teams while using cultural global competence. 	
Essential Understandings	Essential Questions

<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> • Forces are all around them • There are different types of forces • Certain forces act from a distance 	<ul style="list-style-type: none"> • What are forces? • What are some types of forces? • What forces act from a distance?
<p align="center">Evidence of Student Learning</p>	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p>	<p align="center">Other Assessments</p>
<ul style="list-style-type: none"> • Students will describe how and object can remain at rest when mass and forces are changing all around it. They will use online resources to identify other ways to describe force and motion 	<p>Formative Assessments</p> <ul style="list-style-type: none"> • Interactive Notebook • Performance Assessments • Exit Slips <p>Summative Assessments</p> <ul style="list-style-type: none"> • Tests • Summary • Labs <p>Benchmark Assessment</p> <ul style="list-style-type: none"> • Beginning of the Year Benchmark • Mid-Year Benchmark • End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> • Participation Rubric • Teacher Observations

	<ul style="list-style-type: none"> • Group Work/Class Work
Vocabulary balanced forces/electricity/force/gravity/magnet/net force/static electricity/unbalanced forces	
Knowledge and Skills	
Content	Skills
<i>Students will know...</i> <ul style="list-style-type: none"> • What forces are • Different types of forces • What forces act from a distance 	<i>Students will be able to ...</i> <ul style="list-style-type: none"> • Explore how forces work • Discover different types of forces • Learn about forces that act from a distance
Instructional Plan	
Suggested Activities	Resources
<ul style="list-style-type: none"> - Apply a strong and a weak force to a toy truck to see how it affects the motion of the object - Observe and measure contact forces by observing spring scales that are attached to two cars facing in the opposite direction - Build an electromagnet 	<ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts) - http://www.sps186.org/resources/sciencek5/?p=13475 - https://betterlesson.com/lesson/632399/animal-groups-benefits-and-disadvantages - http://www.livebinders.com/play/play?id=1179151#anchor - http://artsnowlearning.org/ - http://ngss-k-5-ausd.weebly.com/
Literature	

- HMH Science Dimensions Textbook/Workbook

Websites

- www.brainpop.com
- www.newsela.com (leveled texts)
- <https://www.teachengineering.org/>
- www.readworks.org (leveled texts)
- <http://www.sps186.org/resources/sciencek5/?p=13475>
- <https://betterlesson.com/lesson/632399/animal-groups-benefits-and-disadvantages>
- <http://www.livebinders.com/play/play?id=1179151#anchor>
- <http://artsnowlearning.org/>
- <http://ngss-k-5-ausd.weebly.com/>

Modifications

Special Education Students / 504 (*These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan*) reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.

English Language learners: *use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.*

Students at Risk of Failure: *Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.*

Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

Suggested Options for Differentiation

English Language Learners

- Preview lessons
- Labeled pictures
- Use visuals
- Teacher tutoring
- Modified Assignments

Gifted and Talented

- Higher level questioning
- Students design questions
- Differentiated Assignments
- Choice board to extend learning
- Peer tutoring

Basic Skills/Economically Disadvantaged/Students at Risk

- Highlight key words
- Preview lessons
- Graphic organizers
- Cooperative learning groups

Special Education/504

- Provide differentiated instruction as needed
- Follow all IEP modifications/504 plan
- Pre-teach and model strategies to learn and practice new vocabulary words pertaining to the unit
- Modified assignments

Unit 3 will address the following 21st Century Life and Careers skills:

21st Century Themes		Career Ready Practices	
9.1	Personal Financial Literacy		CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers	√	CRP2. Apply appropriate academic and technical skills.
	Money Management		CRP3. Attend to personal health and financial well-being.
	Credit and Debt Management	√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing		CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer	√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility	√	CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting	√	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

9.2	Career Awareness, Exploration, and Preparation		√	CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness			CRP10. Plan education and career paths aligned to personal goals.
X	Career Exploration		√	CRP11. Use technology to enhance productivity.
X	Career Preparation		√	CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.

Unit 3 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Asking Questions and Defining Problems Asking questions and defining problems in grades 3–5 builds on grades K–2 experiences and progresses to specifying qualitative relationships. Ask questions that can be investigated based on patterns such as cause and effect relationships. (3-PS2-3) Define a simple problem that can be solved through the development of a new or improved object or tool. (3-PS2-4)</p> <p>Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include</p>	<p>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. (Boundary: Qualitative and conceptual, but not quantitative addition of forces are used at this level.) (3-PS2-1) 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</p>	<p>Patterns Patterns of change can be used to make predictions. (3-PS2-2)</p> <p>Cause and Effect Cause and effect relationships are routinely identified. (3-PS2-1) Cause and effect relationships are routinely identified, tested, and used to explain change. (3-PS2-3) ----- ----- Connections to Engineering, Technology, and Applications of Science Interdependence of Science, Engineering, and Technology Scientific discoveries about the natural world can often lead to new and improved</p>

<p>investigations that control variables and provide evidence to support explanations or design solutions. 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. (3-PS2-1) 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. (3-PS2-2) -----</p> <p>----- Connections to Nature of Science</p> <p>Science Knowledge is Based on Empirical Evidence Science findings are based on recognizing patterns. (3-PS2-2)</p> <p>Scientific Investigations Use a Variety of Methods</p> <p>Science investigations use a variety of methods, tools, and techniques. (3-PS2-1)</p>	<p>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.) (3-PS2-2)</p> <p>PS2.B: Types of Interactions Objects in contact exert forces on each other. (3-PS2-1) 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. (3-PS2-3),(3-PS2-4)</p>	<p>technologies, which are developed through the engineering design process. (3-PS2-4)</p>
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<p>Unit 3: Science/3rd Grade</p> <p>Motion</p>	<p>Duration: 30-40 Days (December-January)</p>
<p>Standards:</p>	

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 measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

Unit Summary: Students will be exposed to motion. This unit has two lessons attached to it and should be completed in about 30-40 Days. They will be able to explore types of forces and motion, learn about the relationship between forces and motion, and identify patterns in motion.

NJ Student Learning Standards

Interdisciplinary Skills

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.

SL.3.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.

SL.3.6. Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification.

Technology

8.1.5.E.1 - Use digital tools to research and evaluate the accuracy of, relevance to, and appropriateness of using print and non-print electronic information sources to complete a variety of tasks.

21st Century Life and Career

- CRP2. Apply appropriate academic and technical skills.
- 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.
- CRP9. Model integrity, ethical leadership and effective management.
- CRP11. Use technology to enhance productivity.

<ul style="list-style-type: none"> ● CRP12. Work productively in teams while using cultural global competence. 	
Essential Understandings	Essential Questions
<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> ● Motion is all around them ● There are patterns that take place during motion 	<ul style="list-style-type: none"> ● What is motion? ● What are some patterns in motion?
Evidence of Student Learning	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p> <ul style="list-style-type: none"> ● Students will write clues and guess what an object is based on its motion. 	<p>Other Assessments</p> <p>Formative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Response Cards ● Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> ● Tests ● Hands-On Activities <p>Benchmark Assessment</p> <ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Group Work/Class Work

Vocabulary frame of reference/motion/position/speed	
Knowledge and Skills	
Content	Skills
<i>Students will know...</i> <ul style="list-style-type: none"> • What motion is • What some patterns in motion are 	<i>Students will be able to ...</i> <ul style="list-style-type: none"> • Explore types of forces and motion • Learn about the relationship between forces and motion • Identify patterns in motion
Instructional Plan	
Suggested Activities <ul style="list-style-type: none"> - Students will work with a team to measure and describe walking speeds - Students will investigate variables in pendulums 	Resources <ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts) - http://www.sps186.org/resources/sciencek5/?p=13475 - https://betterlesson.com/lesson/632399/animal-groups-benefits-and-disadvantages - http://www.livebinders.com/play/play?id=1179151#anchor - http://artsnowlearning.org/ - http://ngss-k-5-ausd.weebly.com/
Literature	

- HMH Dimensions textbook/workbook

Websites

- www.brainpop.com
- www.newsela.com (leveled texts)
- <https://www.teachengineering.org/>
- www.readworks.org (leveled texts)
- <http://www.sps186.org/resources/sciencek5/?p=13475>
- <https://betterlesson.com/lesson/632399/animal-groups-benefits-and-disadvantages>
- <http://www.livebinders.com/play/play?id=1179151#anchor>
- <http://artsnowlearning.org/>
- <http://ngss-k-5-ausd.weebly.com/>

Modifications

Special Education Students / 504 *(These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan)* reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.

English Language learners: *use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.*

Students at Risk of Failure: *Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.*

Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

Suggested Options for Differentiation

English Language Learners

- Provide pictures and well labeled models
- Speak slowly and gesture when necessary
- Pre-teach vocabulary words
- Extended Time
- Less questions on a page for tests

Gifted and Talented

- Create an enhanced set of introductory activities (e.g. advance organizers, concept maps, concept puzzles)
- Provide options, alternatives and choices to differentiate and broaden the curriculum
- Organize and offer flexible small group learning activities
- Differentiate Assignments
- Complete different homework assignments than peers
- Open ended questions to activate higher level thinking
- Higher level texts

Basic Skills/Economically Disadvantaged/Students at Risk

- Pre-teach vocabulary using visuals and gestures
- Chunk texts
- Highlight key words
- Frequent breaks
- Strategic grouping
- Pre-teach concepts
- Communication logs

Modifications/Accommodations

Special Education/504

- Provide differentiated instruction as needed
- Follow all IEP modifications/504 plan

- Review concepts and important vocabulary from previous lessons before teaching new information
- Check for student understanding often with formal, informal, verbal, and nonverbal measures
- Progress Monitoring
- Strategic grouping
- Pre-teach concepts

Unit 4 will address the following 21st Century Life and Careers skills:

21st Century Themes		Career Ready Practices	
9.1	Personal Financial Literacy		CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers	√	CRP2. Apply appropriate academic and technical skills.
	Money Management		CRP3. Attend to personal health and financial well-being.
	Credit and Debt Management	√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing		CRP5. Consider the environmental, social and economic impacts of decisions.

	Becoming a Critical Consumer		√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility		√	CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting		√	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation			CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness			CRP10. Plan education and career paths aligned to personal goals.
X	Career Exploration			CRP11. Use technology to enhance productivity.
X	Career Preparation		√	CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	B. Creativity and Innovation: Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.
	D. Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
	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.

Unit 4 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Developing and Using Models Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. Develop models to describe phenomena. (3-LS1-1)</p> <p>-----</p> <p>Connections to Nature of Science Scientific Knowledge is Based on Empirical Evidence Science findings are based on recognizing patterns. (3-LS1-1)</p>	<p>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. (3-LS1-1)</p>	<p>Patterns Patterns of change can be used to make predictions. (3-LS1-1)</p>

Unit 4: Science/3rd Grade Life Cycles and Inherited Traits	Duration: 15-20 Days (February)
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.	
Unit Summary: Students will be exposed to life cycles and inherited traits. This unit has three lessons attached to it and should be completed in about 15-20 Days. They will be able to explore the life cycles of plants and animals and discover inherited plant and animal traits.	
NJ Student Learning Standards	
<p style="text-align: center;">Interdisciplinary Skills</p> <p>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.</p> <p>SL.3.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.</p> <p>SL.3.6. Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification.</p> <p style="text-align: center;">Technology</p> <p>8.1.5.E.1 - Use digital tools to research and evaluate the accuracy of, relevance to, and appropriateness of using print and non-print electronic information sources to complete a variety of tasks.</p> <p style="text-align: center;">21st Century Life and Career</p> <ul style="list-style-type: none"> ● CRP2. Apply appropriate academic and technical skills. 	

<ul style="list-style-type: none"> ● 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. ● CRP12. Work productively in teams while using cultural global competence. 	
Essential Understandings	Essential Questions
<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> ● There are plant life cycles ● There are animal life cycles ● There are traits that plants inherit ● There are traits that animals inherit 	<ul style="list-style-type: none"> ● What are some plant life cycles? ● What are some animal life cycles? ● What are inherited plant and animal traits?
Evidence of Student Learning	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p> <ul style="list-style-type: none"> ● Students will work to develop a model that demonstrates a plant or animal life cycle and compare it to other plant or animal life cycles. 	<p>Other Assessments</p> <p>Formative Assessments</p> <ul style="list-style-type: none"> ● Interactive Notebook ● Performance Assessments ● Exit Slips ● Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> ● Quizzes ● Summary ● Hands-On Activities

	Benchmark Assessment <ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark Alternative Assessments <ul style="list-style-type: none"> ● Teacher Observations ● Group Work/Class Work
Vocabulary Life cycle/metamorphosis/organism/pupa/trait	
Knowledge and Skills	
Content	Skills
<i>Students will know....</i> <ul style="list-style-type: none"> ● What some plant life cycles are ● What some animal life cycles are ● What traits animals inherit ● What traits plants inherit 	<i>Students will be able to ...</i> <ul style="list-style-type: none"> ● Explore the life cycles of plants and animals ● Discover inherited plant and animal traits
Instructional Plan	
Suggested Activities <ul style="list-style-type: none"> ● Plant seeds to watch them germinate and grow (observe the life cycle) ● Compare and contrast poster of insects and amphibians ● Observe mealworm metamorphosis 	Resources <ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)

	<ul style="list-style-type: none"> - http://www.sps186.org/resources/sciencek5/?p=13475 - https://betterlesson.com/lesson/632399/animal-groups-benefits-and-disadvantages - http://www.livebinders.com/play/play?id=1179151#anchor - http://artsnowlearning.org/ - http://ngss-k-5-ausd.weebly.com/
Literature	
<ul style="list-style-type: none"> - HMH Dimensions Textbook/Workbook 	
Websites	
<ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts) - http://www.sps186.org/resources/sciencek5/?p=13475 - https://betterlesson.com/lesson/632399/animal-groups-benefits-and-disadvantages - http://www.livebinders.com/play/play?id=1179151#anchor - http://artsnowlearning.org/ - http://ngss-k-5-ausd.weebly.com/ 	
Modifications	
<p>Special Education Students / 504 <i>(These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan)</i> reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.</p>	

English Language learners: *use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.*

Students at Risk of Failure: *Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.*

Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

Suggested Options for Differentiation

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

Gifted and Talented

- Organize and offer flexible small group learning activities
- Teach cognitive and methodological skills
- Use centers

Basic Skills/Economically Disadvantaged/Students at Risk

- Strategic grouping
- Pre-teach concepts
- Small group for assessments
- Check in's during experiments to help refocus
- Communication logs

Special Education/504

- Follow all IEP modifications/504 plan
- Provide visual aids to support concepts being taught

- Use graphic organizers to help students organize important information from a lesson
- Reword Directions
- Strategic grouping
- Pre-teach concepts
- Small group for assessments
- Check in's during experiments to help refocus

Unit 5 will address the following 21st Century Life and Careers skills:

21st Century Themes		Career Ready Practices	
9.1	Personal Financial Literacy		CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers	√	CRP2. Apply appropriate academic and technical skills.
	Money Management		CRP3. Attend to personal health and financial well-being.
	Credit and Debt Management	√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing	√	CRP5. Consider the environmental, social and economic impacts of decisions.

	Becoming a Critical Consumer		√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility		√	CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting		√	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation			CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness			CRP10. Plan education and career paths aligned to personal goals.
X	Career Exploration		√	CRP11. Use technology to enhance productivity.
X	Career Preparation		√	CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.
	D. Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
	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.

Unit 5 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Analyzing and Interpreting Data</p> <p>Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used.</p> <p>Analyze and interpret data to make sense</p>	<p>LS2.C: Ecosystem Dynamics, Functioning, and Resilience</p> <p>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,</p>	<p>Cause and Effect</p> <p>Cause and effect relationships are routinely identified and used to explain change. (3-LS4- 2),(3-LS4-3)</p> <p>Scale, Proportion, and Quantity</p> <p>Observable phenomena exist from very short to very long time periods. (3-LS4-1)</p>

<p>of phenomena using logical reasoning. (3-LS4-1)</p> <p>Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems. Use evidence (e.g., observations, patterns) to construct an explanation. (3-LS4-2)</p> <p>Engaging in Argument from Evidence Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s). Construct an argument with evidence. (3-LS4-3) 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)</p>	<p>and some die. (secondary to 3-LS4-4)</p> <p>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) (3-LS4-1) Fossils provide evidence about the types of organisms that lived long ago and also about the nature of their environments. (3-LS4-1)</p> <p>LS4.B: Natural Selection Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing. (3-LS4-2)</p> <p>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)</p> <p>LS4.D: Biodiversity and Humans Populations live in a variety of habitats, and change in those habitats affects the organisms living there. (3-LS4-4)</p>	<p>Systems and System Models A system can be described in terms of its components and their interactions. (3-LS4-4) ----- ----- Connections to Engineering, Technology, and Applications of Science</p> <p>Interdependence of Science, Engineering, and Technology Knowledge of relevant scientific concepts and research findings is important in engineering. (3-LS4-4) ----- ----- Connections to Nature of Science</p> <p>Scientific Knowledge Assumes an Order and Consistency in Natural Systems Science assumes consistent patterns in natural systems. (3-LS4-1)</p>
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<p>Unit 5: Science/3rd Grade</p> <p>Organisms and Their Environment</p>	<p>Duration: 30-40 Days (March-April)</p>
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Unit Summary: Students will be exposed to organisms and their environment. This unit has four lessons attached to it and should be completed in about 30-40 Days. They will be able to explore inheritance and variation of traits in organisms, discover how different organisms adapt to their environment, and identify the cause and effect of how organisms change when environments change.

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-LS4-3 - 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.

NJ Student Learning Standards

Interdisciplinary Skills

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.

SL.3.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.

SL.3.6. Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification.

Technology

8.1.5.E.1 - Use digital tools to research and evaluate the accuracy of, relevance to, and appropriateness of using print and non-print electronic information sources to complete a variety of tasks.

21st Century Life and Career

- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.

<ul style="list-style-type: none"> ● CRP5. Consider the environmental, social and economic impacts of decisions. ● 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. ● CRP11. Use technology to enhance productivity. ● CRP12. Work productively in teams while using cultural global competence. 	
Essential Understandings	Essential Questions
<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> ● The environment affects traits ● Adaptations help an organism survive ● Organisms can succeed in their environments with the proper characteristics ● Environments can changes and there is an effect because of that 	<ul style="list-style-type: none"> ● How does the environment affect traits? ● What are adaptations? ● How can organisms succeed in their environment? ● What happens when environments change?
Evidence of Student Learning	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p> <ul style="list-style-type: none"> ● Students will research, plan, and write ideas about why some animals have thicker body fat than others. 	<p>Other Assessments</p> <p>Formative Assessments</p> <ul style="list-style-type: none"> ● Exit Slips ● Response Cards ● Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> ● Summary ● Labs ● Hands-On Activities <p>Benchmark Assessment</p>

	<ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Participation Rubric ● Group Work/Class Work
<p align="center">Vocabulary</p> <p align="center">adaptation/camouflage/environment/habitat/mimicry/population</p>	
<p align="center">Knowledge and Skills</p>	
Content	Skills
<p><i>Students will know....</i></p> <ul style="list-style-type: none"> ● How the environment affects traits ● What adaptations are ● How organisms can succeed in their environment ● What happens when environments change 	<p><i>Students will be able to ...</i></p> <ul style="list-style-type: none"> ● Explore inheritance and variation of traits in organisms ● Discover how different organisms adapt to their environment ● Identify the cause and effect of how organisms change when environments change
<p align="center">Instructional Plan</p>	
Suggested Activities	Resources
<ul style="list-style-type: none"> ● Design a greenhouse ● Water and watch how plants grow over 2 weeks depending on how much water you give them ● Illustrate adaptations ● Model bird beaks 	<ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)

<ul style="list-style-type: none"> ● Battle of the beans ● Design and model a solution to help caribou migrate after an environmental change cause by human activity 	<ul style="list-style-type: none"> - http://www.sps186.org/resources/sciencek5/?p=13475 - https://betterlesson.com/lesson/632399/animal-groups-benefits-and-disadvantages - http://www.livebinders.com/play/play?id=1179151#anchor - http://artsnowlearning.org/ - http://ngss-k-5-ausd.weebly.com/
<p style="text-align: center;">Literature</p> <ul style="list-style-type: none"> - HMH Dimensions Textbook/Workbook 	
<p style="text-align: center;">Websites</p> <ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts) - http://www.sps186.org/resources/sciencek5/?p=13475 - https://betterlesson.com/lesson/632399/animal-groups-benefits-and-disadvantages - http://www.livebinders.com/play/play?id=1179151#anchor - http://artsnowlearning.org/ - http://ngss-k-5-ausd.weebly.com/ 	
<p style="text-align: center;">Modifications</p> <p>Special Education Students / 504 <i>(These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan)</i> reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.</p> <p>English Language learners: <i>use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.</i></p>	

<p>Students at Risk of Failure: <i>Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.</i></p> <p>Gifted Students: <i>provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.</i></p>
Suggested Options for Differentiation
<p>English Language Learners</p> <ul style="list-style-type: none"> ● Provide pictures and well labeled models ● Speak slowly and gesture when necessary ● Extended time on assessments ● Small group for assessment
<p>Gifted and Talented</p> <ul style="list-style-type: none"> ● Differentiate Assignments ● Differentiate Texts ● Complete Different Homework than peers
<p>Basic Skills/Economically Disadvantaged/Students at Risk</p> <ul style="list-style-type: none"> ● Graphic organizers ● Build background knowledge ● Increased parent communication ● Strategic grouping ● Pre-teach concepts ● Small group for assessments
<p>Special Education/504</p> <ul style="list-style-type: none"> ● Follow all IEP modifications/504 plan ● Provide manipulatives or the opportunity to draw solution strategies ● Pre-Teach concepts ● Extended Time ● Strategic grouping

- Small group for assessments
- Check in's during experiments to help refocus

Unit 6 will address the following 21st Century Life and Careers skills:

21st Century Themes		Career Ready Practices	
9.1	Personal Financial Literacy		CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers	√	CRP2. Apply appropriate academic and technical skills.
	Money Management		CRP3. Attend to personal health and financial well-being.
	Credit and Debt Management	√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing	√	CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer	√	CRP6. Demonstrate creativity and innovation.

	Civic Financial Responsibility	√	CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting	√	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation		CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness		CRP10. Plan education and career paths aligned to personal goals.
X	Career Exploration	√	CRP11. Use technology to enhance productivity.
X	Career Preparation	√	CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.
	D. Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
	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.

Unit 6 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Analyzing and Interpreting Data Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used. Analyze and interpret data to make sense of phenomena using logical reasoning. (3-LS4-1)</p> <p>Constructing Explanations and Designing Solutions</p>	<p>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. (secondary to 3-LS4-4)</p> <p>LS4.A: Evidence of Common Ancestry and Diversity Some kinds of plants and animals that once lived on Earth are no</p>	<p>Cause and Effect Cause and effect relationships are routinely identified and used to explain change. (3-LS4- 2),(3-LS4-3)</p> <p>Scale, Proportion, and Quantity Observable phenomena exist from very short to very long time periods. (3-LS4-1)</p> <p>Systems and System Models A system can be described in terms of its components and their interactions. (3-LS4-4) -----</p>

<p>Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems. Use evidence (e.g., observations, patterns) to construct an explanation. (3-LS4-2)</p> <p>Engaging in Argument from Evidence Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s). Construct an argument with evidence. (3-LS4-3) 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)</p>	<p>longer found anywhere. (Note: moved from K-2) (3-LS4-1) Fossils provide evidence about the types of organisms that lived long ago and also about the nature of their environments. (3-LS4-1)</p> <p>LS4.B: Natural Selection Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing. (3-LS4-2)</p> <p>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)</p> <p>LS4.D: Biodiversity and Humans Populations live in a variety of habitats, and change in those habitats affects the organisms living there. (3-LS4-4)</p>	<p>----- Connections to Engineering, Technology, and Applications of Science</p> <p>Interdependence of Science, Engineering, and Technology Knowledge of relevant scientific concepts and research findings is important in engineering. (3-LS4-4) ----- ----- Connections to Nature of Science</p> <p>Scientific Knowledge Assumes an Order and Consistency in Natural Systems Science assumes consistent patterns in natural systems. (3-LS4-1)</p>
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<p>Unit 6: Science/3rd Grade</p> <p>Fossils</p>	<p>Duration: 15-20 Days (May)</p>
<p>Unit Summary: Students will be exposed to fossils. This unit has two lessons attached to it and should be completed in about 15-20 Days. They will be able to explore fossils and discover what fossils can tell us about animals that lived long ago.</p>	
<p>Standards:</p>	

3-LS4-1 - Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.	
NJ Student Learning Standards	
<p style="text-align: center;">Interdisciplinary Skills</p> <p>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.</p> <p>SL.3.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.</p> <p>SL.3.6. Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification.</p> <p style="text-align: center;">Technology</p> <p>8.1.5.E.1 - Use digital tools to research and evaluate the accuracy of, relevance to, and appropriateness of using print and non-print electronic information sources to complete a variety of tasks.</p> <p style="text-align: center;">21st Century Life and Career</p> <ul style="list-style-type: none"> ● CRP2. Apply appropriate academic and technical skills. ● CRP4. Communicate clearly and effectively and with reason. ● CRP5. Consider the environmental, social and economic impacts of decisions. ● 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. ● CRP11. Use technology to enhance productivity. ● CRP12. Work productively in teams while using cultural global competence. 	
Essential Understandings	Essential Questions

<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> ● Fossils are the remains or traces of an organism that lived long ago ● Fossils tell us about the past 	<ul style="list-style-type: none"> ● What is a fossil? ● What do fossils tell us about the past?
<p align="center">Evidence of Student Learning</p>	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p> <ul style="list-style-type: none"> ● Students will create a diorama to model an ancient environment 	<p align="center">Other Assessments</p> <p>Formative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Interactive Notebook ● Performance Assessments <p>Summative Assessments</p> <ul style="list-style-type: none"> ● Tests ● Quizzes ● Summary <p>Benchmark Assessment</p> <ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> ● Participation Rubric ● Teacher Observations ● Group Work/Class Work

Vocabulary adaptation/camouflage/environment/habitat/mimicry/population	
Knowledge and Skills	
Content	Skills
<i>Students will know....</i> <ul style="list-style-type: none"> • What fossils are • That fossils tell us about the past 	<i>Students will be able to ...</i> <ul style="list-style-type: none"> • Explore fossils • Discover what fossils can tell us about animals that lived long ago
Instructional Plan	
Suggested Activities <ul style="list-style-type: none"> • Shoe tracing to resemble a fossil • Walking pattern models • What animals from the past look like animals from today • Analyze fossil patterns 	Resources <ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts) - http://www.sps186.org/resources/sciencek5/?p=13475 - https://betterlesson.com/lesson/632399/animal-groups-benefits-and-disadvantages - http://www.livebinders.com/play/play?id=1179151#anchor - http://artsnowlearning.org/ - http://ngss-k-5-ausd.weebly.com/
Literature <ul style="list-style-type: none"> - HMH Dimensions Textbook/Workbook 	

Websites

- www.brainpop.com
- www.newsela.com (leveled texts)
- <https://www.teachengineering.org/>
- www.readworks.org (leveled texts)
- <http://www.sps186.org/resources/sciencek5/?p=13475>
- <https://betterlesson.com/lesson/632399/animal-groups-benefits-and-disadvantages>
- <http://www.livebinders.com/play/play?id=1179151#anchor>
- <http://artsnowlearning.org/>
- <http://ngss-k-5-ausd.weebly.com/>

Modifications

Special Education Students / 504 (*These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan*) reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.

English Language learners: *use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.*

Students at Risk of Failure: *Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.*

Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

Suggested Options for Differentiation

English Language Learners

- Provide pictures and well labeled models
- Speak slowly and gesture when necessary
- Extended time on assessments
- Small group for assessment

Gifted and Talented

- Differentiate Assignments

<ul style="list-style-type: none"> ● Differentiate Texts ● Complete Different Homework than peers
Basic Skills/Economically Disadvantaged/Students at Risk <ul style="list-style-type: none"> ● Graphic organizers ● Build background knowledge ● Increased parent communication ● Strategic grouping ● Pre-teach concepts ● Small group for assessments
Special Education/504 <ul style="list-style-type: none"> ● Follow all IEP modifications/504 plan ● Provide manipulatives or the opportunity to draw solution strategies ● Pre-Teach concepts ● Extended Time ● Strategic grouping ● Small group for assessments ● Check in's during experiments to help refocus

Unit 7: Science/3rd Grade Weather and Patterns	Duration: 15-20 Days (June)
Unit Summary: Students will be exposed to weather and weather patterns. This unit has four lessons attached to it and should be completed in about 15-20 Days. They will be able to explore how weather is predicted and measured, learn about the difference between weather and climate, and identify the impact of severe weather on society and nature.	
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.	

NJ Student Learning Standards

Interdisciplinary Skills

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.

SL.3.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.

SL.3.6. Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification.

Technology

8.1.5.E.1 - Use digital tools to research and evaluate the accuracy of, relevance to, and appropriateness of using print and non-print electronic information sources to complete a variety of tasks.

21st Century Life and Career

- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP5. Consider the environmental, social and economic impacts of decisions.
- 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.
- CRP11. Use technology to enhance productivity.
- CRP12. Work productively in teams while using cultural global competence.

Essential Understandings

Students will understand that...

- Weather can be measured
- Weather can be predicted
- There can be severe impacts to the planet because of the weather

Essential Questions

- How is weather measured?
- How can we predict weather?
- What are some severe weather impacts?
- What are some types of climates?

<ul style="list-style-type: none"> There are different types of climates 	
Evidence of Student Learning	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p> <ul style="list-style-type: none"> Students will research and make a safety plan to prepare for severe weather in their area 	<p>Other Assessments</p> <p>Formative Assessments</p> <ul style="list-style-type: none"> Teacher Observations Response Cards Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> Tests Quizzes Labs <p>Benchmark Assessment</p> <ul style="list-style-type: none"> Beginning of the Year Benchmark Mid-Year Benchmark End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> Teacher Observations Participation Rubric
Vocabulary	

adaptation/camouflage/environment/habitat/mimicry/population	
Knowledge and Skills	
Content	Skills
<p><i>Students will know....</i></p> <ul style="list-style-type: none"> ● How weather is measured ● How weather is predicted ● How severe weather can impact our planet ● What types of climates exist around the world 	<p><i>Students will be able to ...</i></p> <ul style="list-style-type: none"> ● Explore how weather is predicted and measured ● Learn about the difference between weather and climate ● Identify the impact of severe weather on society and nature
Instructional Plan	
Suggested Activities	Resources
<ul style="list-style-type: none"> ● Create pictures of different wind patterns ● Color your location based on how much rain it receives ● Analyze weather data ● Create a bar graph depicting average precipitation in your town ● Research weather conditions from several locations in the United States ● Plan a way to control the impact of flooding ● Collaborate a new location for blue penguins to go 	<ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts) - http://www.sps186.org/resources/sciencek5/?p=13475 - https://betterlesson.com/lesson/632399/animal-groups-benefits-and-disadvantages - http://www.livebinders.com/play/play?id=1179151#anchor - http://artsnowlearning.org/ - http://ngss-k-5-ausd.weebly.com/
Literature	
<ul style="list-style-type: none"> - HMH Dimensions Textbook/Workbook 	

<p style="text-align: center;">Websites</p> <ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts) - http://www.sps186.org/resources/sciencek5/?p=13475 - https://betterlesson.com/lesson/632399/animal-groups-benefits-and-disadvantages - http://www.livebinders.com/play/play?id=1179151#anchor - http://artsnowlearning.org/ - http://ngss-k-5-ausd.weebly.com/
<p style="text-align: center;">Modifications</p> <p>Special Education Students / 504 <i>(These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan)</i> reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.</p> <p>English Language learners: <i>use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.</i></p> <p>Students at Risk of Failure: <i>Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.</i></p> <p>Gifted Students: <i>provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.</i></p>
<p style="text-align: center;">Suggested Options for Differentiation</p>
<p>English Language Learners</p> <ul style="list-style-type: none"> ● Provide pictures and well labeled models ● Speak slowly and gesture when necessary ● Extended time on assessments ● Small group for assessment

Gifted and Talented

- Differentiate Assignments
- Differentiate Texts
- Complete Different Homework than peers

Basic Skills/Economically Disadvantaged/Students at Risk

- Graphic organizers
- Build background knowledge
- Increased parent communication
- Strategic grouping
- Pre-teach concepts
- Small group for assessments

Special Education/504

- Follow all IEP modifications/504 plan
- Provide manipulatives or the opportunity to draw solution strategies
- Pre-Teach concepts
- Extended Time
- Strategic grouping
- Small group for assessments
- Check in's during experiments to help refocus

Estell Manor School District Curriculum Science

Grade 4

Standard Alignment September 2016

NJDOE Adoption Date September 2016

EMS BOE Approved 10/23/19

Philosophy

The purpose of the Estell Manor School District Science Curriculum is to develop scientific understanding and civic efficacy (the readiness and willingness to assume citizenship responsibilities and to make informed and reasoned decisions for the public good as citizens). The New Jersey Student Learning Standards for Science reflect the belief that all students can and must learn enough science to assume their role as concerned citizens, equipped with necessary information and decision-making skills.

The need for scientific literacy in today's increasingly technological world, for fundamental reforms in how science is taught, and for established standards in science education are by now well-known and documented. Presidential appeals for excellence, combined with expressions of concern from scientists and educators, have led to national, state, and local initiatives. New Jersey is host to an impressive array of scientific and technological industries, and should play a leadership role in the development and implementation of standards for the teaching and learning of science.

Pacing Guide

Unit	Anticipated Timeframe
Unit 1: Engineering and Technology	15-20 Days (September)
Unit 2: Energy	30-40 Days (October-November)

Unit 3: Waves and Information Transfer	30-40 Days (December-January)
Unit 4: Plant Structure and Function	15-20 Days (February)
Unit 5: Animal Structure and Function	15-20 Days (March)
Unit 6: Changes to Earth's Surface	15-20 Days (April)
Unit 7: Rocks and Fossils	15-20 Days (May)
Unit 8: Natural Resources and Hazards	15-20 Days (June)

Core Materials: Houghton Mifflin Harcourt Science Dimensions Textbook

Unit 1 will address the following 21st Century Life and Careers skills:

21st Century Themes		Career Ready Practices	
9.1	Personal Financial Literacy		CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers	√	CRP2. Apply appropriate academic and technical skills.
	Money Management		CRP3. Attend to personal health and financial well-being.
	Credit and Debt Management	√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing		CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer	√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility		CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting	√	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

9.2	Career Awareness, Exploration, and Preparation		√	CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness			CRP10. Plan education and career paths aligned to personal goals.
X	Career Exploration		√	CRP11. Use technology to enhance productivity.
X	Career Preparation		√	CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.
	D. Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
	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.

Unit 1 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Asking Questions and Defining Problems Asking questions and defining problems in 3–5 builds on grades K–2 experiences and progresses to specifying qualitative relationships. Define a simple design problem that can be solved through the development of an object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost. (3-5-ETS1-1)</p> <p>Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2</p>	<p>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)</p> <p>ETS1.B: Developing Possible Solutions Research on a problem should be carried</p>	<p>Influence of Engineering, Technology, and Science on Society and the Natural World</p> <p>People’s needs and wants change over time, as do their demands for new and improved technologies. (3- 5-ETS1-1)</p> <p>Engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands. (3-5-ETS1-2)</p>

<p>experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions. 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. (3-5-ETS1-3)</p> <p>Constructing Explanations and Designing Solutions</p> <p>Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems. Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design problem. (3-5-ETS1-2)</p>	<p>out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. (3-5-ETS1-2) 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) 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)</p> <p>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)</p>	
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<p>Unit 1: Science / 4th Grade</p> <p>Engineering and Technology</p>	<p>Duration: 15-20 Days (September)</p>
<p>Standards:</p>	

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.

Unit Summary: Students will be exposed to engineering and technology in this unit. This unit has three lessons attached to it and should be completed in about 15-20 Days. They will be able to explore how engineers define problems and solutions, learn about the importance of prototypes, and use models to examine how prototypes are tested and improved.

NJ Student Learning Standards:

Interdisciplinary Skills

Primary Interdisciplinary Connections: Infused within the unit are connections to the NJSL for Mathematics, Language Arts

NJSLA.SL2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.

NJSLA.W10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

SL.4.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly

Technology

8.1.8.A.1 - Demonstrate knowledge of a real world problem using digital tools.

21st Century Life and Career

- CRP2. Apply appropriate academic and technical skills.
- 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.
- CRP9. Model integrity, ethical leadership and effective management.
- CRP11. Use technology to enhance productivity.
- CRP12. Work productively in teams while using cultural global competence.

Essential Understanding	Essential Questions
<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> ● Engineers define problems ● Engineers design solutions ● Engineers test and improve prototypes 	<ul style="list-style-type: none"> ● How do engineers define problems? ● How do engineers design solutions? ● How do engineers test and improve prototypes?
Evidence of Student Learning	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p>	<p>Other Assessments</p>

<ul style="list-style-type: none"> Students will conduct an investigation with a team where they will figure out how to extend their sense of sight, smell, and touch 	<p>Formative Assessments</p> <ul style="list-style-type: none"> Teacher Observations Response Cards Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> Tests Quizzes Hands-On Activities <p>Benchmark Assessment</p> <ul style="list-style-type: none"> Beginning of the Year Benchmark Mid-Year Benchmark End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> Teacher Observations Group Work/Class Work
<p>Vocabulary</p> <p>constraint/criteria/engineering/failure analysis/fair test/optimize</p>	
<p>Knowledge and Skills</p>	
<p>Content</p>	<p>Skills</p>
<p><i>Students will know...</i></p>	<p><i>Students will be able to...</i></p>

<ul style="list-style-type: none"> • How engineers define problems • How engineers design solutions • How engineers test and improve prototypes 	<ul style="list-style-type: none"> • Explore how engineers define problems and solutions • Learn about the importance of prototypes • Use models to examine how prototypes are tested and improved
Instructional Plan	
Suggested Activities	Resources
<ul style="list-style-type: none"> - Walk around the room to inspect objects that have been engineered - Build a strong structure using index cards - Plan menus based on criterias and constraints - Design a hearing-enhancing device - Critique designs 	<ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
Literature	
<ul style="list-style-type: none"> - HMH Science Dimensions Textbook/Workbook 	
Websites	
	<ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)

Modifications

Special Education Students / 504 *(These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan)* reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.

English Language learners: *use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.*

Students at Risk of Failure: *Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.*

Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

**For additional modifications and accommodations, see below*

English Language Learners

- Speak slowly and gesture when necessary
- Pre-teach vocabulary words
- Extended Time
- Modified Assignments

Gifted and Talented

- Higher level questioning
- Students design questions
- Peer tutoring
- Choice of activity to extend learning
- Expose to sophisticated vocabulary
- Open ended questions to activate higher level thinking

Basic Skills/Economically Disadvantaged/Students at Risk

- Strategic grouping
- Pre-teach concepts
- Small group for assessments
- Communication logs

Special Education/504

- Follow all IEP modifications/504 plan
- Provide student with specific graphic organizers to help them note take about the different levels of government
- Provide students with notes from the lesson and discussions
- Labeled pictures related to concepts
- Check in's during experiments to help refocus

Unit 2 will address the following 21st Century Life and Careers skills:

21st Century Themes		Career Ready Practices	
9.1	Personal Financial Literacy		CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers	√	CRP2. Apply appropriate academic and technical skills.
	Money Management		CRP3. Attend to personal health and financial well-being.

	Credit and Debt Management		√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing			CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer		√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility			CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting		√	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation			CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness			CRP10. Plan education and career paths aligned to personal goals.
X	Career Exploration		√	CRP11. Use technology to enhance productivity.
X	Career Preparation		√	CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.

Unit 2 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Asking Questions and Defining Problems Asking questions and defining problems in grades 3–5 builds on grades K–2	PS3.A: Definitions of Energy The faster a given object is moving, the more energy it possesses. (4- PS3-1) Energy can be	Energy and Matter Energy can be transferred in various ways

<p>experiences and progresses to specifying qualitative relationships. Ask questions that can be investigated and predict reasonable outcomes based on patterns such as cause and effect relationships. (4-PS3-3)</p> <p>Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions. Make observations to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution. (4-PS3-2)</p> <p>Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems. Use evidence (e.g., measurements, observations, patterns) to construct an explanation. (4-PS3-1) Apply scientific ideas to solve design problems. (4-PS3-4)</p>	<p>moved from place to place by moving objects or through sound, light, or electric currents. (4-PS3-2),(4-PS3-3)</p> <p>PS3.B: Conservation of Energy and Energy Transfer Energy is present whenever there are moving objects, sound, light, or heat. When objects collide, energy can be transferred from one object to another, thereby changing their motion. In such collisions, some energy is typically also transferred to the surrounding air; as a result, the air gets heated and sound is produced. (4-PS3-2),(4-PS3-3) Light also transfers energy from place to place. (4-PS3-2) Energy can also be transferred from place to place by electric currents, which can then be used locally to produce motion, sound, heat, or light. The currents may have been produced to begin with by transforming the energy of motion into electrical energy. (4-PS3-2),(4-PS3-4)</p> <p>PS3.C: Relationship Between Energy and Forces When objects collide, the contact forces transfer energy so as to change the objects' motions. (4-PS3-3)</p> <p>PS3.D: Energy in Chemical Processes and Everyday Life The expression “produce energy” typically refers to the conversion of stored energy into a desired form for</p>	<p>and between objects. (4-PS3-1),(4-PS3-2),(4-PS3-3),(4-PS3-4) ----- ----- Connections to Engineering, Technology, and Applications of Science</p> <p>Influence of Science, Engineering and Technology on Society and the Natural World Engineers improve existing technologies or develop new ones. (4-PS3-4) ----- Connections to Nature of Science</p> <p>Science is a Human Endeavor Most scientists and engineers work in teams. (4-PS3-4) Science affects everyday life. (4-PS3-4)</p>
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	<p>practical use. (4-PS3-4)</p> <p>ETS1.A: Defining 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. (secondary to 4-PS3-4)</p>	
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Unit 2: Science/4th Grade Energy	Duration: 30-40 Days (October-November)
Standards: 4-PS3-1 - Use evidence to construct an explanation relating the speed of an object to the energy of that object. 4-PS3-2 - Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. 4-PS3-3 - Ask questions and predict outcomes about the changes in energy that occur when objects collide. 4-PS3-4 - Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.	

Unit Summary: Students will be exposed to energy. This unit has three lessons attached to it and should be completed in about 30-40 Days. They will be able to discover what energy is, how energy is transferred, and explore how collisions can show energy.	
NJ Student Learning Standards	
<p style="text-align: center;">Interdisciplinary Skills</p> <p>RI.4.1. Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text</p> <p>SL.4.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.</p> <p>SL.4.6. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation.</p> <p style="text-align: center;">Technology</p> <p>8.1.5. E.1 - Use digital tools to research and evaluate the accuracy of, relevance to, and appropriateness of using print and non-print electronic information sources to complete a variety of tasks.</p> <p style="text-align: center;">21st Century Life and Careers Skills</p> <ul style="list-style-type: none"> ● CRP2. Apply appropriate academic and technical skills. ● 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. ● CRP11. Use technology to enhance productivity. ● CRP12. Work productively in teams while using cultural global competence. 	
Essential Understandings	Essential Questions

<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> • Energy is the ability to do work and cause changes in matter • Energy can be transferred from one place to another • Collisions can show energy 	<ul style="list-style-type: none"> • What is energy? • How is energy transferred? • How do collisions show energy?
<p>Evidence of Student Learning</p>	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p>	<p>Other Assessments</p>
<ul style="list-style-type: none"> • Students will use elastic energy or a spring to move a truck. They will design and test a truck with their team. 	<p>Formative Assessments</p> <ul style="list-style-type: none"> • Teacher Observations • Response Cards • Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> • Summary • Labs • Hands-On Activities <p>Benchmark Assessment</p> <ul style="list-style-type: none"> • Beginning of the Year Benchmark • Mid-Year Benchmark • End of the Year Benchmark

	Alternative Assessments <ul style="list-style-type: none"> • Teacher Observations • Participation Rubric • Group Work/Class Work
Vocabulary collision/electric current/energy/energy transfer/energy transformation/heat/vibrate	
Knowledge and Skills	
Content	Skills
<i>Students will know...</i> <ul style="list-style-type: none"> • What energy is • How energy is transferred • How collisions show energy 	<i>Students will be able to ...</i> <ul style="list-style-type: none"> • Discover what energy is and how it is transferred • Explore how collisions show energy
Instructional Plan	
Suggested Activities	Resources
<ul style="list-style-type: none"> - Create a circuit for a lightbulb - Make a drum to see vibrations - Design and test a solar cooker - Observe energy transfer involving motion 	<ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
Literature	
<ul style="list-style-type: none"> - HMH Science Dimensions Textbook/Workbook 	

<p style="text-align: center;">Websites</p> <ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
<p style="text-align: center;">Modifications</p> <p>Special Education Students / 504 <i>(These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan)</i> reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.</p> <p>English Language learners: <i>use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.</i></p> <p>Students at Risk of Failure: <i>Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.</i></p> <p>Gifted Students: <i>provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.</i></p>
<p style="text-align: center;">Suggested Options for Differentiation</p>
<p>English Language Learners</p> <ul style="list-style-type: none"> ● Preview lessons ● Labeled pictures ● Use visuals ● Teacher tutoring ● Modified Assignments
<p>Gifted and Talented</p>

- Higher level questioning
- Students design questions
- Differentiated Assignments
- Choice board to extend learning
- Peer tutoring

Basic Skills/Economically Disadvantaged/Students at Risk

- Highlight key words
- Preview lessons
- Graphic organizers
- Cooperative learning groups

Special Education/504

- Provide differentiated instruction as needed
- Follow all IEP modifications/504 plan
- Pre-teach and model strategies to learn and practice new vocabulary words pertaining to the unit
- Modified assignments

Unit 3 will address the following 21st Century Life and Careers skills:

21st Century Themes		Career Ready Practices	
9.1	Personal Financial Literacy		CRP1. Act as a responsible and contributing citizen and employee.

	Income and Careers	√	CRP2. Apply appropriate academic and technical skills.
	Money Management		CRP3. Attend to personal health and financial well-being.
	Credit and Debt Management	√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing		CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer	√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility	√	CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting	√	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation		CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness		CRP10. Plan education and career paths aligned to personal goals.

X	Career Exploration		√	CRP11. Use technology to enhance productivity.
X	Career Preparation		√	CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.

Unit 3 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Developing and Using Models Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. Develop a model using an analogy, example, or abstract representation to describe a scientific principle. (4-PS4- 1) Develop a model to describe phenomena. (4-PS4-2)</p> <p>Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems. Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design</p>	<p>PS4.A: Wave Properties Waves, which are regular patterns of motion, can be made in water by disturbing the surface. When waves move across the surface of deep water, the water goes up and down in place; there is no net motion in the direction of the wave except when the water meets a beach. (Note: This grade band endpoint was moved from K–2.) (4-PS4- 1) Waves of the same type can differ in amplitude (height of the wave) and wavelength (spacing between wave peaks). (4-PS4-1)</p> <p>PS4.B: Electromagnetic Radiation An object can be seen when light reflected from its surface enters the eyes. (4-PS4-2)</p> <p>PS4.C: Information Technologies and Instrumentation Digitized information can be transmitted over long distances without significant degradation. High-tech</p>	<p>Patterns Similarities and differences in patterns can be used to sort and classify natural phenomena. (4-PS4-1) Similarities and differences in patterns can be used to sort and classify designed products. (4- PS4-3)</p> <p>Cause and Effect Cause and effect relationships are routinely identified. (4-PS4-2) ----- -----</p> <p>Connections to Engineering, Technology, and Applications of Science</p> <p>Interdependence of Science, Engineering, and Technology Knowledge of relevant scientific concepts and research findings is important in engineering. (4-PS4-3)</p>

<p>solution. (4-PS4-3) ----- ----- Connections to Nature of Science</p> <p>Scientific Knowledge is Based on Empirical Evidence Science findings are based on recognizing patterns. (4- PS4-1)</p>	<p>devices, such as computers or cell phones, can receive and decode information—convert it from digitized form to voice—and vice versa. (4-PS4-3)</p> <p>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. (secondary to 4-PS4-3)</p>	
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<p>Unit 3: Science/4th Grade</p> <p>Waves and Information Transfer</p>	<p>Duration: 30-40 Days (December-January)</p>
<p>Standards:</p> <p>4-PS4-1 - Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.</p> <p>4-PS4-2 - Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.</p> <p>4-PS4-3 - Generate and compare multiple solutions that use patterns to transfer information.</p>	
<p>Unit Summary: Students will be exposed to waves and information transfer. This unit has three lessons attached to it and should be completed in about 30-40 Days. They will be able to discover the different parts of waves, explore how light can be reflected, and examine and describe how information is transferred from place to place.</p>	
<p>NJ Student Learning Standards</p>	
<p>Interdisciplinary Skills</p>	

RI.4.1. Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text

SL.4.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.

SL.4.6. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation.

Technology

8.1.5. E.1 - Use digital tools to research and evaluate the accuracy of, relevance to, and appropriateness of using print and non-print electronic information sources to complete a variety of tasks.

21st Century Life and Career

- CRP2. Apply appropriate academic and technical skills.
- 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.
- CRP11. Use technology to enhance productivity.
- CRP12. Work productively in teams while using cultural global competence.

Essential Understandings

Students will understand that...

- Waves are the up and down movement of surface water
- Light reflects off of objects when it encounters an obstacle
- Information can be transferred from place to place

Essential Questions

- What are waves?
- How does light reflect?
- How is information transferred from place to place?

Evidence of Student Learning	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p> <ul style="list-style-type: none"> Students will plan a method with their team to bring more sunlight into poorly lit areas of the school 	<p>Other Assessments</p> <p>Formative Assessments</p> <ul style="list-style-type: none"> Teacher Observations Performance Assessments Exit Slips Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> Quizzes Hands-On Activities <p>Benchmark Assessment</p> <ul style="list-style-type: none"> Beginning of the Year Benchmark Mid-Year Benchmark End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> Teacher Observations Group Work/Class Work
<p>Vocabulary</p> <p>amplitude/crest/opaque/reflection/translucent/transparent/trough/volume/wave/wavelength</p>	
<p>Knowledge and Skills</p>	
<p>Content</p>	<p>Skills</p>

<i>Students will know...</i> <ul style="list-style-type: none"> • What waves are • How light reflects off of objects • How information is transferred from place to place 	<i>Students will be able to ...</i> <ul style="list-style-type: none"> • Discover the different parts of waves • Explore how light can be reflected • Examine and describe how information is transferred from place to place
Instructional Plan	
Suggested Activities <ul style="list-style-type: none"> - Create waves with certain materials - Use a model to investigate how images differ when light interacts with air and water - Create a model of reflected objects to investigate how angles of reflection affect light - Make a scytale - Make a code - Make a wave using binary code - Create a pixelated message using binary code 	Resources <ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
Literature	
<ul style="list-style-type: none"> - HMH Dimensions textbook/workbook 	
Websites	
<ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts) 	
Modifications	

Special Education Students / 504 *(These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan)* reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.

English Language learners: *use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.*

Students at Risk of Failure: *Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.*

Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

Suggested Options for Differentiation

English Language Learners

- Provide pictures and well labeled models
- Speak slowly and gesture when necessary
- Pre-teach vocabulary words
- Extended Time
- Less questions on a page for tests

Gifted and Talented

- Create an enhanced set of introductory activities (e.g. advance organizers, concept maps, concept puzzles)
- Provide options, alternatives and choices to differentiate and broaden the curriculum
- Organize and offer flexible small group learning activities
- Differentiate Assignments
- Complete different homework assignments than peers
- Open ended questions to activate higher level thinking
- Higher level texts

Basic Skills/Economically Disadvantaged/Students at Risk

- Pre-teach vocabulary using visuals and gestures
- Chunk texts
- Highlight key words
- Frequent breaks
- Strategic grouping
- Pre-teach concepts
- Communication logs

Modifications/Accommodations

Special Education/504

- Provide differentiated instruction as needed
- Follow all IEP modifications/504 plan
- Review concepts and important vocabulary from previous lessons before teaching new information
- Check for student understanding often with formal, informal, verbal, and nonverbal measures
- Progress Monitoring
- Strategic grouping
- Pre-teach concepts

Unit 4 will address the following 21st Century Life and Careers skills:

21st Century Themes		Career Ready Practices	
9.1	Personal Financial Literacy		CRP1. Act as a responsible and contributing citizen and employee.

	Income and Careers	√	CRP2. Apply appropriate academic and technical skills.
	Money Management		CRP3. Attend to personal health and financial well-being.
	Credit and Debt Management	√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing	√	CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer	√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility	√	CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting	√	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation		CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness		CRP10. Plan education and career paths aligned to personal goals.

X	Career Exploration		√	CRP11. Use technology to enhance productivity.
X	Career Preparation		√	CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	B. Creativity and Innovation: Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.
	D. Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
	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.

Unit 4 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
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<p>Developing and Using Models Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. Use a model to test interactions concerning the functioning of a natural system. (4-LS1-2)</p> <p>Engaging in Argument from Evidence Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s). Construct an argument with evidence, data, and/or a model. (4-LS1-1)</p>	<p>LS1.A: Structure and Function Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4-LS1-1)</p> <p>LS1.D: Information Processing Different sense receptors are specialized for particular kinds of information, which may be then processed by the animal’s brain. Animals are able to use their perceptions and memories to guide their actions. (4-LS1-2)</p>	<p>Systems and System Models A system can be described in terms of its components and their interactions. (4-LS1-1),(4-LS1-2)</p>
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<p>Unit 4: Science/4th Grade</p> <p>Plant Structure and Function</p>	<p>Duration: 15-20 Days (February)</p>
<p>Standards:</p> <p>4-LS1-1 - Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.</p>	
<p>Unit Summary: Students will be exposed to plant structure and function. This unit has two lessons attached to it and should be completed in about 15-20 Days. They will be able to explore the functions of internal and external plant structures and how they aid in growth, survival, behavior, and reproduction and learn how different plant structures work together as a system.</p>	

NJ Student Learning Standards	
<p style="text-align: center;">Interdisciplinary Skills</p> <p>RI.4.1. Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text</p> <p>SL.4.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others’ ideas and expressing their own clearly.</p> <p>SL.4.6. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation.</p> <p style="text-align: center;">Technology</p> <p>8.1.5. E.1 - Use digital tools to research and evaluate the accuracy of, relevance to, and appropriateness of using print and non-print electronic information sources to complete a variety of tasks.</p> <p style="text-align: center;">21st Century Life and Career</p> <ul style="list-style-type: none"> ● CRP2. Apply appropriate academic and technical skills. ● CRP4. Communicate clearly and effectively and with reason. ● CRP5. Consider the environmental, social and economic impacts of decisions. ● 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. ● CRP11. Use technology to enhance productivity. ● CRP12. Work productively in teams while using cultural global competence. 	
Essential Understandings	Essential Questions

<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> • There are different plant parts and they function in different ways • Plants grow and reproduce 	<ul style="list-style-type: none"> • What are some plant parts and how do they function? • How do plants grow and reproduce?
<p align="center">Evidence of Student Learning</p>	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p> <ul style="list-style-type: none"> • Students will show how plants and animals work together to make pollination possible 	<p align="center">Other Assessments</p> <p>Formative Assessments</p> <ul style="list-style-type: none"> • Teacher Observations • Performance Assessments • Exit Slips • Response Cards <p>Summative Assessments</p> <ul style="list-style-type: none"> • Tests • Summary • Labs <p>Benchmark Assessment</p> <ul style="list-style-type: none"> • Beginning of the Year Benchmark • Mid-Year Benchmark • End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> • Teacher Observations • Group Work/Class Work

Vocabulary fertilization/leaf/pollination/reproduction/root/seed/spore/stem	
Knowledge and Skills	
Content	Skills
<i>Students will know....</i> <ul style="list-style-type: none"> • Different plant parts • How plant parts function • How plants grow • How plants reproduce 	<i>Students will be able to ...</i> <ul style="list-style-type: none"> • Explore the functions of internal and external plant structures and how they aid in growth, survival, behavior, and reproduction • Learn how different plant structures work together as a system
Instructional Plan	
Suggested Activities <ul style="list-style-type: none"> • Model water flow in plants • Test the function of roots • Pollination models • Pinecone parts • Design a seed dispersal device 	Resources <ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
Literature <ul style="list-style-type: none"> - HMH Dimensions Textbook/Workbook 	
Websites <ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) 	

- <https://www.teachengineering.org/>
- www.readworks.org (leveled texts)

Modifications

Special Education Students / 504 (*These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan*) reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.

English Language learners: *use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.*

Students at Risk of Failure: *Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.*

Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

Suggested Options for Differentiation

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

Gifted and Talented

- Organize and offer flexible small group learning activities
- Teach cognitive and methodological skills
- Use centers

Basic Skills/Economically Disadvantaged/Students at Risk

- Strategic grouping
- Pre-teach concepts
- Small group for assessments
- Check in's during experiments to help refocus
- Communication logs

Special Education/504

- Follow all IEP modifications/504 plan
- Provide visual aids to support concepts being taught
- Use graphic organizers to help students organize important information from a lesson
- Reword Directions
- Strategic grouping
- Pre-teach concepts
- Small group for assessments
- Check in's during experiments to help refocus

Unit 5 will address the following 21st Century Life and Careers skills:

21st Century Themes		Career Ready Practices	
9.1	Personal Financial Literacy		CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers	√	CRP2. Apply appropriate academic and technical skills.

	Money Management			CRP3.Attend to personal health and financial well-being.
	Credit and Debt Management		√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing		√	CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer		√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility		√	CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting		√	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation			CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness			CRP10. Plan education and career paths aligned to personal goals.

X	Career Exploration		√	CRP11. Use technology to enhance productivity.
X	Career Preparation		√	CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.
	D. Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
	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.

Unit 5 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Developing and Using Models Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. Use a model to test interactions concerning the functioning of a natural system. (4-LS1-2)</p> <p>Engaging in Argument from Evidence Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s). Construct an argument with evidence, data, and/or a model. (4-LS1-1)</p>	<p>LS1.A: Structure and Function Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4-LS1-1)</p> <p>LS1.D: Information Processing Different sense receptors are specialized for particular kinds of information, which may be then processed by the animal’s brain. Animals are able to use their perceptions and memories to guide their actions. (4-LS1-2)</p>	<p>Systems and System Models A system can be described in terms of its components and their interactions. (4-LS1-1),(4-LS1-2)</p>

<p>Unit 5: Science/4th Grade</p> <p>Animal Structure and Function</p>	<p>Duration: 15-20 Days (March)</p>
<p>Unit Summary: Students will be exposed to animal structure and function. This unit has three lessons attached to it and should be completed in about 15-20 Days. They will be able to explore the internal and external structure of animals and learn about how different senses work.</p> <p>Standards:</p>	

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.

NJ Student Learning Standards

Interdisciplinary Skills

RI.4.1. Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text

SL.4.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.

SL.4.6. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation.

Technology

8.1.5. E.1 - Use digital tools to research and evaluate the accuracy of, relevance to, and appropriateness of using print and non-print electronic information sources to complete a variety of tasks.

21st Century Life and Career

- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP5. Consider the environmental, social and economic impacts of decisions.
- 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.
- CRP11. Use technology to enhance productivity.

- CRP12. Work productively in teams while using cultural global competence.

Essential Understandings	Essential Questions
<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> ● Animals have external structures ● Animals have internal structures ● Different senses work in their own way 	<ul style="list-style-type: none"> ● What are some external structures of animals? ● What are some internal structures of animals? ● How do senses work?
Evidence of Student Learning	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p> <ul style="list-style-type: none"> ● Students will conduct an investigation with their team on how they can identify an animal based on its teeth. 	<p>Other Assessments</p> <p>Formative Assessments</p> <ul style="list-style-type: none"> ● Interactive Notebook ● Performance Assessments ● Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> ● Tests ● Summary ● Hands-On Activities <p>Benchmark Assessment</p> <ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark <p>Alternative Assessments</p>

	<ul style="list-style-type: none"> ● Participation Rubric ● Teacher Observations ● Group Work/Class Work
Vocabulary External structures/internal structures/organ/organ system/receptors	
Knowledge and Skills	
Content	Skills
<i>Students will know....</i> <ul style="list-style-type: none"> ● Some external structures of animals ● Some internal structures of animals ● How senses work 	<i>Students will be able to ...</i> <ul style="list-style-type: none"> ● Explore the internal and external structures of animals ● Learn about how different senses work
Instructional Plan	
Suggested Activities <ul style="list-style-type: none"> ● Draw an animal in its natural environment ● Build a model to discover how an animal's covering affects its survival ● Gather evidence to investigate the relationship between exercise, heart rate, and breathing rate ● Name that scent! ● Develop a way to test the sense of touch by modeling how receptors in the body work 	Resources <ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
Literature <ul style="list-style-type: none"> - HMH Dimensions Textbook/Workbook 	
Websites	

- www.brainpop.com
- www.newsela.com (leveled texts)
- <https://www.teachengineering.org/>
- www.readworks.org (leveled texts)

Modifications

Special Education Students / 504 (*These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan*) reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.

English Language learners: *use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.*

Students at Risk of Failure: *Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.*

Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

Suggested Options for Differentiation

English Language Learners

- Provide pictures and well labeled models
- Speak slowly and gesture when necessary
- Extended time on assessments
- Small group for assessment

Gifted and Talented

- Differentiate Assignments
- Differentiate Texts
- Complete Different Homework than peers

Basic Skills/Economically Disadvantaged/Students at Risk

- Graphic organizers
- Build background knowledge
- Increased parent communication
- Strategic grouping
- Pre-teach concepts
- Small group for assessments

Special Education/504

- Follow all IEP modifications/504 plan
- Provide manipulatives or the opportunity to draw solution strategies
- Pre-Teach concepts
- Extended Time
- Strategic grouping
- Small group for assessments
- Check in's during experiments to help refocus

Unit 6 will address the following 21st Century Life and Careers skills:

21st Century Themes		Career Ready Practices	
9.1	Personal Financial Literacy		CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers	√	CRP2. Apply appropriate academic and technical skills.
	Money Management		CRP3. Attend to personal health and financial well-being.

	Credit and Debt Management		√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing		√	CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer		√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility		√	CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting		√	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation			CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness			CRP10. Plan education and career paths aligned to personal goals.
X	Career Exploration		√	CRP11. Use technology to enhance productivity.

X	Career Preparation	√	CRP12. Work productively in teams while using cultural global competence.
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Technology

	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.
	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.
	D. Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
	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.

Unit 6 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
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<p>Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions. Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon. (4-ESS2-1)</p> <p>Analyzing and Interpreting Data Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used. Analyze and interpret data to make sense of phenomena using logical reasoning. (4-ESS2-2)</p>	<p>ESS2.A: Earth Materials and Systems Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around. (4-ESS2-1)</p> <p>ESS2.B: Plate Tectonics and Large-Scale System Interactions The locations of mountain ranges, deep ocean trenches, ocean floor structures, earthquakes, and volcanoes occur in patterns. Most earthquakes and volcanoes occur in bands that are often along the boundaries between continents and oceans. Major mountain chains form inside continents or near their edges. Maps can help locate the different land and water features areas of Earth. (4-ESS2-2)</p> <p>ESS2.E: Biogeology Living things affect the physical characteristics of their regions. (4-ESS2-1)</p>	<p>Patterns Patterns can be used as evidence to support an explanation. (4-ESS2-2)</p> <p>Cause and Effect Cause and effect relationships are routinely identified, tested, and used to explain change. (4-ESS2-1)</p>
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<p>Unit 6: Science/4th Grade</p> <p>Changes to Earth’s Surface</p>	<p>Duration: 15-20 Days (April)</p>
<p>Unit Summary: Students will be exposed to changes to Earth’s surface. This unit has four lessons attached to it and should be completed in about 15-20 Days. They will be able to explore how Earth has been shaped by water and other factors, discover how people map Earth’s surface, and learn about the patterns we can see from maps.</p>	

Standards:

4-ESS2-1 - Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.

4-ESS2-2 - Analyze and interpret data from maps to describe patterns of Earth's features.

NJ Student Learning Standards

Interdisciplinary Skills

RI.4.1. Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text

SL.4.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.

SL.4.6. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation.

Technology

8.1.5. E.1 - Use digital tools to research and evaluate the accuracy of, relevance to, and appropriateness of using print and non-print electronic information sources to complete a variety of tasks.

21st Century Life and Career

- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP5. Consider the environmental, social and economic impacts of decisions.
- 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.

<ul style="list-style-type: none"> ● CRP11. Use technology to enhance productivity. ● CRP12. Work productively in teams while using cultural global competence. 	
Essential Understandings	Essential Questions
<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> ● Water shapes the Earth's surface ● Other factors shape the Earth's surface ● Maps can help you learn about the Earth's surface ● Maps show you different patterns 	<ul style="list-style-type: none"> ● How does water shape Earth's surface? ● How do other factors shape Earth's surface? ● How can maps help us learn about Earth's surface? ● What patterns do maps show us?
Evidence of Student Learning	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p> <ul style="list-style-type: none"> ● Students will conduct an investigation with their team to find examples of weathering at the school and how they can affect it. 	<p>Other Assessments</p> <p>Formative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Interactive Notebook ● Performance Assessments <p>Summative Assessments</p> <ul style="list-style-type: none"> ● Quizzes ● Labs ● Hands-On Activities <p>Benchmark Assessment</p> <ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark

	Alternative Assessments <ul style="list-style-type: none"> • Teacher Observations • Participation Rubric • Group Work/Class Work
Vocabulary continent/deposition/desert/elevation/erosion/ocean trench/rainforest/scale/weathering	
Knowledge and Skills	
Content	Skills
<i>Students will know....</i> <ul style="list-style-type: none"> • Water shapes the Earth's surface • How other factors shape the Earth's surface • How maps can help you learn about the Earth's surface • What patterns maps show them 	<i>Students will be able to ...</i> <ul style="list-style-type: none"> • Explore how Earth has been shaped by water and other factors • Discover how people map Earth's surface • Learn about the patterns you can see from maps
Instructional Plan	
Suggested Activities <ul style="list-style-type: none"> • Watch water grow in a freezer • Model and observe the effect of slope on the erosion of Earth's surface • Plan and conduct investigations to model and observe changes that occur on Earth's surface • Make a map • Design a park • Model an earthquake • Model the features of the ocean floor • Model mountains • Analyze and interpret current data on earthquakes to identify 	Resources <ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)

patterns	
Literature	
<ul style="list-style-type: none"> - HMH Dimensions Textbook/Workbook 	
Websites	
<ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts) 	
Modifications	
<p>Special Education Students / 504 (<i>These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan</i>) reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.</p> <p>English Language learners: <i>use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.</i></p> <p>Students at Risk of Failure: <i>Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.</i></p> <p>Gifted Students: <i>provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.</i></p>	
Suggested Options for Differentiation	
<p>English Language Learners</p> <ul style="list-style-type: none"> ● Provide pictures and well labeled models ● Speak slowly and gesture when necessary ● Extended time on assessments ● Small group for assessment 	

Gifted and Talented

- Differentiate Assignments
- Differentiate Texts
- Complete Different Homework than peers

Basic Skills/Economically Disadvantaged/Students at Risk

- Graphic organizers
- Build background knowledge
- Increased parent communication
- Strategic grouping
- Pre-teach concepts
- Small group for assessments

Special Education/504

- Follow all IEP modifications/504 plan
- Provide manipulatives or the opportunity to draw solution strategies
- Pre-Teach concepts
- Extended Time
- Strategic grouping
- Small group for assessments
- Check in's during experiments to help refocus

Unit 7 will address the following 21st Century Life and Careers skills:

21st Century Themes

Career Ready Practices

9.1	Personal Financial Literacy			CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers		√	CRP2. Apply appropriate academic and technical skills.
	Money Management			CRP3. Attend to personal health and financial well-being.
	Credit and Debt Management		√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing		√	CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer		√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility		√	CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting		√	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

9.2	Career Awareness, Exploration, and Preparation			CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness			CRP10. Plan education and career paths aligned to personal goals.
X	Career Exploration		√	CRP11. Use technology to enhance productivity.
X	Career Preparation		√	CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.
	D. Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.

	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.

Unit 7 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in 3– 5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems. Identify the evidence that supports particular points in an explanation. (4-ESS1-1)	ESS1.C: The History of Planet Earth Local, regional, and global patterns of rock formations reveal changes over time due to earth forces, such as earthquakes. The presence and location of certain fossil types indicate the order in which rock layers were formed. (4-ESS1-1)	Patterns Patterns can be used as evidence to support an explanation. (4-ESS1-1) ----- ----- Connections to Nature of Science Scientific Knowledge Assumes an Order and Consistency in Natural Systems Science assumes consistent patterns in natural systems. (4-ESS1-1)

Unit 7: Science/4th Grade	Duration: 15-20 Days (May)
Rocks and Fossils	
Unit Summary: Students will be exposed to rocks and fossils. This unit has three lessons attached to it and should be completed in 15-20 Days. They will be able to explore the different layers of rocks and how they change, discover what they can learn about fossils and ancient environments, and identify patterns in fossils.	
Standards: 4-ESS1-1 - Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.	

NJ Student Learning Standards	
<p style="text-align: center;">Interdisciplinary Skills</p> <p>RI.4.1. Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text</p> <p>SL.4.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.</p> <p>SL.4.6. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation.</p> <p style="text-align: center;">Technology</p> <p>8.1.5. E.1 - Use digital tools to research and evaluate the accuracy of, relevance to, and appropriateness of using print and non-print electronic information sources to complete a variety of tasks.</p> <p style="text-align: center;">21st Century Life and Career</p> <ul style="list-style-type: none"> ● CRP2. Apply appropriate academic and technical skills. ● CRP4. Communicate clearly and effectively and with reason. ● CRP5. Consider the environmental, social and economic impacts of decisions. ● 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. ● CRP11. Use technology to enhance productivity. ● CRP12. Work productively in teams while using cultural global competence. 	
Essential Understandings	Essential Questions

<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> ● Rock layers change ● Fossils tell us about ancient environments ● Fossils show us patterns 	<ul style="list-style-type: none"> ● How do rocks layers change? ● What do fossils tell us about ancient environments? ● What are some patterns fossils show us?
<p align="center">Evidence of Student Learning</p>	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p> <ul style="list-style-type: none"> ● Students will research a dinosaur's needs and design a zoo space for it with their team. 	<p align="center">Other Assessments</p> <p>Formative Assessments</p> <ul style="list-style-type: none"> ● Exit Slips ● Response Cards ● Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> ● Tests ● Quizzes <p>Benchmark Assessment</p> <ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> ● Participation Rubric ● Teacher Observations ● Group Work/Class Work
<p align="center">Vocabulary</p>	

Aquatic fossil/extinct/fossil/relative age/terrestrial fossil	
Knowledge and Skills	
Content	Skills
<i>Students will know....</i> <ul style="list-style-type: none"> • How rock layers change • What fossils tell them about ancient environments • What are some patterns fossils show them 	<i>Students will be able to ...</i> <ul style="list-style-type: none"> • Explore the different layers of rocks and how they change • Discover what we can learn about fossils and ancient environments • Identify patterns in fossils
Instructional Plan	
Suggested Activities	Resources
<ul style="list-style-type: none"> • Use a jar and three types of materials to model how rock layers form • Model ways that rock layers form and the forces that can cause them to change • Examine fossils from a fossil kit to determine the kind of organism that each belonged to and how it lived • Choose a fossil and research where they can be found all over the world • Build a replica of rock layers 	<ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
Literature	
<ul style="list-style-type: none"> - HMH Dimensions Textbook/Workbook 	
Websites	
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Suggested Options for Differentiation

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- Provide pictures and well labeled models
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- Extended time on assessments
- Small group for assessment

Gifted and Talented

- Differentiate Assignments
- Differentiate Texts
- Complete Different Homework than peers

Basic Skills/Economically Disadvantaged/Students at Risk

- Graphic organizers
- Build background knowledge
- Increased parent communication

- Strategic grouping
- Pre-teach concepts
- Small group for assessments

Special Education/504

- Follow all IEP modifications/504 plan
- Provide manipulatives or the opportunity to draw solution strategies
- Pre-Teach concepts
- Extended Time
- Strategic grouping
- Small group for assessments
- Check in's during experiments to help refocus

Unit 8 will address the following 21st Century Life and Careers skills:

21st Century Themes		Career Ready Practices	
9.1	Personal Financial Literacy	√	CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers	√	CRP2. Apply appropriate academic and technical skills.
	Money Management		CRP3. Attend to personal health and financial well-being.

	Credit and Debt Management		√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing		√	CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer		√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility		√	CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting		√	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation		√	CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness			CRP10. Plan education and career paths aligned to personal goals.
X	Career Exploration		√	CRP11. Use technology to enhance productivity.

X	Career Preparation	√	CRP12. Work productively in teams while using cultural global competence.
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Technology

	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.
	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.
	D. Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
	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.

Unit 8 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
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<p>Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems. Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design solution. (4-ESS3-2)</p> <p>Obtaining, Evaluating, and Communicating Information Obtaining, evaluating, and communicating information in 3–5 builds on K–2 experiences and progresses to evaluate the merit and accuracy of ideas and methods. Obtain and combine information from books and other reliable media to explain phenomena. (4-ESS3-1)</p>	<p>ESS3.A: Natural Resources Energy and fuels that humans use are derived from natural sources, and their use affects the environment in multiple ways. Some resources are renewable over time, and others are not. (4-ESS3-1)</p> <p>ESS3.B: Natural Hazards A variety of hazards result from natural processes (e.g., earthquakes, tsunamis, volcanic eruptions). Humans cannot eliminate the hazards but can take steps to reduce their impacts. (4-ESS3-2) (Note: This Disciplinary Core Idea can also be found in 3.WC.)</p> <p>ETS1.B: Designing Solutions to Engineering Problems Testing a solution involves investigating how well it performs under a range of likely conditions. (secondary to 4-ESS3-2)</p>	<p>Cause and Effect Cause and effect relationships are routinely identified and used to explain change. (4-ESS3-1) Cause and effect relationships are routinely identified, tested, and used to explain change. (4-ESS3-2) ----- ----- Connections to Engineering, Technology, and Applications of Science</p> <p>Interdependence of Science, Engineering, and Technology Knowledge of relevant scientific concepts and research findings is important in engineering. (4-ESS3-1)</p> <p>Influence of Science, Engineering and Technology on Society and the Natural World</p> <p>Over time, people’s needs and wants change, as do their demands for new and improved technologies. (4-ESS3-1) Engineers improve existing technologies or develop new ones to increase their benefits, to decrease known risks, and to meet societal demands. (4-ESS3-2)</p>
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<p>Unit 8: Science/4th Grade</p> <p>Natural Resources and Hazards</p>	<p>Duration: 15-20 Days (June)</p>
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Unit Summary: Students will be exposed to natural resources and hazards. This unit has four lessons attached to it and should be completed in about 15-20 Days. They will be able to explore how renewable and nonrenewable resources are used for energy and discover how people can reduce land- and water- based hazards and their impacts.

Standards:

4-ESS3-1 - Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

4-ESS3-2 - Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.

NJ Student Learning Standards

Interdisciplinary Skills

RI.4.1. Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text

SL.4.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.

SL.4.6. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation.

Technology

8.1.5. E.1 - Use digital tools to research and evaluate the accuracy of, relevance to, and appropriateness of using print and non-print electronic information sources to complete a variety of tasks.

21st Century Life and Career

- CRP1. Act as a responsible and contributing citizen and employee.
- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.

<ul style="list-style-type: none"> ● CRP5. Consider the environmental, social and economic impacts of decisions. ● 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. ● CRP9. Model integrity, ethical leadership and effective management. ● CRP11. Use technology to enhance productivity. ● CRP12. Work productively in teams while using cultural global competence. 	
Essential Understandings	Essential Questions
<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> ● Certain nonrenewable resources are used for energy ● Certain renewable resources are used for energy ● People can reduce the impact of land-based hazards ● People can reduce the impact of water-based hazards 	<ul style="list-style-type: none"> ● What nonrenewable resources are used for energy? ● What renewable resources are used for energy? ● How can people reduce the impact of land-based hazards? ● How can people reduce the impact of water-based hazards?
Evidence of Student Learning	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p> <ul style="list-style-type: none"> ● Students will research the pros and cons of nonrenewable energy resources and support their argument with evidence. 	<p>Other Assessments</p> <p>Formative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Interactive Notebook ● Performance Assessments <p>Summative Assessments</p> <ul style="list-style-type: none"> ● Summary ● Labs ● Hands-On Activities

	Benchmark Assessment <ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark Alternative Assessments <ul style="list-style-type: none"> ● Teacher Observations ● Group Work/Class Work
Vocabulary drawback/natural hazard/natural resource/nonrenewable resource/pollution/renewable resource/resource	
Knowledge and Skills	
Content	Skills
<i>Students will know....</i> <ul style="list-style-type: none"> ● Which nonrenewable resources are used for energy ● Which renewable resources are used for energy ● How people can reduce the impact of land-based hazards ● How people can reduce the impact of water-based hazards 	<i>Students will be able to ...</i> <ul style="list-style-type: none"> ● Explore how renewable and nonrenewable resources are used for energy ● Discover how people can reduce land- and water-based hazards and their impacts
Instructional Plan	
Suggested Activities <ul style="list-style-type: none"> ● Research where the school gets its energy from ● Mining using birdseed, beads, and sunflower seeds ● Evaluate the air quality around the school ● Stay within a budget to design a solar hot water heater ● Create a seismometer 	Resources <ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)

<ul style="list-style-type: none"> ● Create a disaster supply kit ● Develop a plan to reduce the impact of a landslide ● Develop a design solution to reduce the impact of a tsunami 	
Literature	
<ul style="list-style-type: none"> - HMH Dimensions Textbook/Workbook 	
Websites	
<ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts) 	
Modifications	
<p>Special Education Students / 504 <i>(These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan)</i> reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.</p> <p>English Language learners: <i>use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.</i></p> <p>Students at Risk of Failure: <i>Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.</i></p> <p>Gifted Students: <i>provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.</i></p>	
Suggested Options for Differentiation	
<p>English Language Learners</p> <ul style="list-style-type: none"> ● Provide pictures and well labeled models ● Speak slowly and gesture when necessary ● Extended time on assessments 	

- Small group for assessment

Gifted and Talented

- Differentiate Assignments
- Differentiate Texts
- Complete Different Homework than peers

Basic Skills/Economically Disadvantaged/Students at Risk

- Graphic organizers
- Build background knowledge
- Increased parent communication
- Strategic grouping
- Pre-teach concepts
- Small group for assessments

Special Education/504

- Follow all IEP modifications/504 plan
- Provide manipulatives or the opportunity to draw solution strategies
- Pre-Teach concepts
- Extended Time
- Strategic grouping
- Small group for assessments
- Check in's during experiments to help refocus

Estell Manor School District Curriculum Science

Grade 5

Standard Alignment September 2016

NJDOE Adoption Date September 2016

EMS BOE Approved 10/23/19

Philosophy

The purpose of the Estell Manor School District Science Curriculum is to develop scientific understanding and civic efficacy (the readiness and willingness to assume citizenship responsibilities and to make informed and reasoned decisions for the public good as citizens). The New Jersey Student Standards for Science reflect the belief that all students can and must learn enough science to assume their role as concerned citizens, equipped with necessary information and decision-making skills.

The need for scientific literacy in today's increasingly technological world, for fundamental reforms in how science is taught, and for established standards in science education are by now well-known and documented. Presidential appeals for excellence, combined with expressions of concern from scientists and educators, have led to national, state, and local initiatives. New Jersey is host to an impressive array of scientific and technological industries, and should play a leadership role in the development and implementation of standards for the teaching and learning of science.

Pacing Guide

Unit	Anticipated Timeframe
Unit 1: Engineering and Technology	15-20 Days (September)
Unit 2: Matter	40-50 Days (October-November)

Unit 3: Energy and Matter in Organisms	40-50 Days (December-January)
Unit 4: Energy and Matter in Ecosystems	20-30 Days (January-February)
Unit 5: Systems in Space	20-30 Days (March-April)
Unit 6: Earth's Systems	20-30 Days (April-May)
Unit 7: Earth and Human Activities	20-30 Days (May-June)

Core Materials: Houghton Mifflin Harcourt Science Dimensions Textbook

Unit 1 will address the following 21st Century Life and Careers skills:	
21st Century Themes	Career Ready Practices

9.1	Personal Financial Literacy			CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers		√	CRP2. Apply appropriate academic and technical skills.
	Money Management			CRP3. Attend to personal health and financial well-being.
	Credit and Debt Management		√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing		√	CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer		√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility		√	CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting		√	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation		√	CRP9. Model integrity, ethical leadership and effective management.

X	Career Awareness			CRP10. Plan education and career paths aligned to personal goals.
X	Career Exploration		√	CRP11. Use technology to enhance productivity.
X	Career Preparation		√	CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.
	D. Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
	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.

Unit 1 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Obtaining, Evaluating, and Communicating Information Obtaining, evaluating, and communicating information in 3– 5 builds on K–2 experiences and progresses to evaluating the merit and accuracy of ideas and methods. Obtain and combine information from books and/or other reliable media to explain phenomena or solutions to a design problem. (5-ESS3-1)</p> <p>Asking Questions and Defining Problems Asking questions and defining problems in 3–5 builds on grades K–2 experiences and progresses to specifying qualitative relationships. Define a simple design problem that can be solved through the</p>	<p>ESS3.C: Human Impacts on Earth Systems Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth’s resources and environments. (5-ESS3-1)</p> <p>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</p>	<p>Systems and System Models A system can be described in terms of its components and their interactions. (5-ESS3-1) ----- ----- Connections to Nature of Science Science Addresses Questions About the Natural and Material World. Science findings are limited to questions that can be answered with empirical evidence. (5-ESS3-1)</p> <p>Influence of Engineering, Technology, and Science on Society and the Natural World People’s needs and wants change over time, as do their demands for new and improved technologies. (3- 5-ETS1-1) Engineers improve existing technologies</p>

<p>development of an object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost. (3-5-ETS1-1)</p> <p>Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions. 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. (3-5-ETS1-3)</p> <p>Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems. Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design problem. (3-5-ETS1-2)</p>	<p>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)</p> <p>ETS1.B: Developing Possible Solutions Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. (3-5-ETS1-2) 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) 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)</p> <p>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)</p>	<p>or develop new ones to increase their benefits, decrease known risks, and meet societal demands. (3-5-ETS1-2)</p>
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Unit 1: Science / 5th Grade Engineering and Technology	Duration: 15-20 Days (September)
<p>Standards:</p> <p>5-ESS3-1 - Obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources and environment.</p> <p>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.</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> <p>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>	
<p>Unit Summary: Students will be exposed to engineering and technology in this unit. This unit has three lessons attached to it and should be completed in 15-20 Days. They will be able to discover how science and math are used in engineering, investigate a design process, and explore how technology decisions affect society.</p>	
<p>NJ Student Learning Standards:</p> <p style="text-align: center;">Interdisciplinary Skills</p> <p>Primary Interdisciplinary Connections: Infused within the unit are connections to the NJSLs for Mathematics, Language Arts</p> <p>NJSLSA.SL2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.</p> <p>NJSLSA.W10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.</p>	

SL.5.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly

Technology

8.1.8.A.1 - Demonstrate knowledge of a real world problem using digital tools.

21st Century Life and Career

- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP5. Consider the environmental, social and economic impacts of decisions.
- 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.
- CRP9. Model integrity, ethical leadership and effective management.
- CRP11. Use technology to enhance productivity.
- CRP12. Work productively in teams while using cultural global competence.

Essential Understanding	Essential Questions
<p><i>Students will understand that...</i></p> <ul style="list-style-type: none">● Science and math are used in engineering● A design process requires finding good solutions to problems● Technology affects society	<ul style="list-style-type: none">● How are science and math used in engineering?● What is the design process?● How does technology affect society?
Evidence of Student Learning	

Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i>	Other Assessments
<ul style="list-style-type: none"> Students will redesign the front of the school to improve the way students are dropped off and picked up 	<p>Formative Assessments</p> <ul style="list-style-type: none"> Interactive Notebook Performance Assessments Exit Slips <p>Summative Assessments</p> <ul style="list-style-type: none"> Tests Quizzes Hands-On Activities <p>Benchmark Assessment</p> <ul style="list-style-type: none"> Beginning of the Year Benchmark Mid-Year Benchmark End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> Teacher Observations Group Work/Class Work
<p style="text-align: center;">Vocabulary</p> <p style="text-align: center;">brainstorming/constraint/criteria/deforestation/erosion/trade off</p>	

Knowledge and Skills	
Content	Skills
<i>Students will know...</i> <ul style="list-style-type: none"> • How science and math are used in engineering • What the design process is • How technology affects society 	<i>Students will be able to...</i> <ul style="list-style-type: none"> • Discover how science and math are used in engineering • Investigate a design process • Explore how technology decisions affect society
Instructional Plan	
Suggested Activities	Resources
<ul style="list-style-type: none"> - Test a solution to compare how much weight different bundles of straws can support - Build a scale model of a path that will allow people to safely walk up and down a steep path in a park - Develop criteria and constraints to design and create a balloon-powered car 	<ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
Literature	
<ul style="list-style-type: none"> - HMH Science Dimensions Textbook/Workbook 	
Websites	

	<ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
<p style="text-align: center;">Modifications</p> <p>Special Education Students / 504 (<i>These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan</i>) reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.</p> <p>English Language learners: <i>use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.</i></p> <p>Students at Risk of Failure: <i>Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.</i></p> <p>Gifted Students: <i>provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.</i></p> <p><i>*For additional modifications and accommodations, see below</i></p>	
<p>English Language Learners</p> <ul style="list-style-type: none"> ● Provide pictures and well labeled models ● Pre-teach vocabulary words ● Extended Time ● Less questions on a page for tests ● Modified Assignments 	
<p>Gifted and Talented</p>	

- Higher level questioning
- Students design questions
- Higher level texts
- Peer tutoring
- Open ended questions to activate higher level thinking

Basic Skills/Economically Disadvantaged/Students at Risk

- Strategic grouping
- Pre-teach concepts
- Small group for assessments
- Communication logs

Special Education/504

- Follow all IEP modifications/504 plan
- Provide student with specific graphic organizers to help them note take about the different levels of government
- Provide students with notes from the lesson and discussions
- Labeled pictures related to concepts
- Check in's during experiments to help refocus

Unit 2 will address the following 21st Century Life and Careers skills:

21st Century Themes		Career Ready Practices	
9.1	Personal Financial Literacy		CRP1. Act as a responsible and contributing citizen and employee.

	Income and Careers	√	CRP2. Apply appropriate academic and technical skills.
	Money Management		CRP3. Attend to personal health and financial well-being.
	Credit and Debt Management	√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing		CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer	√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility		CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting	√	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation	√	CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness		CRP10. Plan education and career paths aligned to personal goals.

X	Career Exploration		√	CRP11. Use technology to enhance productivity.
X	Career Preparation		√	CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.
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Unit 2 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Developing and Using Models Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. Develop a model to describe phenomena. (5-PS1-1)</p> <p>Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions. 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. (5-PS1-4) Make observations and measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon. (5-PS1-3)</p>	<p>PS1.A: Structure and Properties of Matter Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. A model showing that gases are made from matter particles that are too small to see and are moving freely around in space can explain many observations, including the inflation and shape of a balloon and the effects of air on larger particles or objects. (5-PS1-1) The amount (weight) of matter is conserved when it changes form, even in transitions in which it seems to vanish. (5-PS1-2) Measurements of a variety of properties can be used to identify materials. (Boundary: At this grade level, mass and weight are not distinguished, and no attempt is made to define the unseen particles or explain the atomic-scale mechanism of evaporation and condensation.) (5-PS1-3)</p> <p>PS1.B: Chemical Reactions When two or more different substances are mixed, a</p>	<p>Cause and Effect Cause and effect relationships are routinely identified, tested, and used to explain change. (5-PS1-4)</p> <p>Scale, Proportion, and Quantity Natural objects exist from the very small to the immensely large. (5-PS1-1) Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume. (5-PS1- 2),(5-PS1-3) ----- ----- Connections to Nature of Science Scientific Knowledge Assumes an Order and Consistency in Natural Systems Science assumes consistent patterns in natural systems. (5-PS1-2)</p>

Using Mathematics and Computational Thinking Mathematical and computational thinking in 3–5 builds on K–2 experiences and progresses to extending quantitative measurements to a variety of physical properties and using computation and mathematics to analyze data and compare alternative design solutions. Measure and graph quantities such as weight to address scientific and engineering questions and problems. (5-PS1-2)	new substance with different properties may be formed. (5-PS1-4) No matter what reaction or change in properties occurs, the total weight of the substances does not change. (Boundary: Mass and weight are not distinguished at this grade level.) (5-PS1-2)	
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Unit 2: Science/5th Grade	Duration: 40-50 Days (October-November)
Matter	
Standards: 5-PS1-1 - Develop a model to describe that matter is made of particles too small to be seen. 5-PS1-2 - Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved. 5-PS1-3 - Make observations and measurements to identify materials based on their properties.	
Unit Summary: Students will be exposed to matter. This unit has three lessons attached to it and should be completed in about 40-50 Days. They will be able to discover the different states of matter and how to measure matter, explore the different properties of matter along with dissolving rates of certain matter, and compare and contrast physical and chemical changes of matter.	
NJ Student Learning Standards	
Interdisciplinary Skills	
RI.5.2. Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.	

RI.5.3. Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.

RI.5.9 Integrate and reflect on (e.g. practical knowledge, historical/cultural context, and background knowledge) information from several texts on the same topic in order to write or speak about the subject knowledgeably.

W.5.10. Write routinely over extended time frames (time for research, reflection, metacognition/self-correction and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

SL.5.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.

Technology

8.1.5.A.1 - Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.

21st Century Life and Careers Skills

- CRP2. Apply appropriate academic and technical skills.
- 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.
- CRP9. Model integrity, ethical leadership and effective management.
- CRP11. Use technology to enhance productivity.
- CRP12. Work productively in teams while using cultural global competence.

Essential Understandings

Essential Questions

<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> ● Matter is anything that takes up space ● There are multiple properties of matter ● Matter can change 	<ul style="list-style-type: none"> ● What is matter? ● What are properties of matter? ● How does matter change?
<p align="center">Evidence of Student Learning</p>	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p>	<p align="center">Other Assessments</p>
<ul style="list-style-type: none"> ● Students will conduct an investigation with their team to prove that matter is conserved during a change 	<p>Formative Assessments</p> <ul style="list-style-type: none"> ● Interactive Notebook ● Performance Assessments ● Exit Slips <p>Summative Assessments</p> <ul style="list-style-type: none"> ● Summary ● Labs ● Tests <p>Benchmark Assessment</p> <ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark

	Alternative Assessments <ul style="list-style-type: none"> • Teacher Observations • Group Work/Class Work
Vocabulary Boiling point/chemical change/conservation of matter/freezing point/matter/melting point/mixture/physical change/physical property/solution	
Knowledge and Skills	
Content	Skills
<i>Students will know...</i> <ul style="list-style-type: none"> • What matter is • The different properties of matter • How matter changes 	<i>Students will be able to ...</i> <ul style="list-style-type: none"> • Discover the different states of matter and how to measure matter • Explore the different properties of matter along with dissolving rates of certain matter • Compare and contrast physical and chemical changes of matter
Instructional Plan	
Suggested Activities	Resources
<ul style="list-style-type: none"> - Measure the volume, weight, and length of objects - Conduct an investigation to see how the type of salt, the temperature of water, and the rate of stirring affect how fast salt dissolves in water - Identify mystery substances by observing physical 	<ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)

and chemical changes	
Literature	
<ul style="list-style-type: none"> - HMH Science Dimensions Textbook/Workbook 	
Websites	
<ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts) 	
Modifications	
<p>Special Education Students / 504 <i>(These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan)</i> reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.</p> <p>English Language learners: <i>use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.</i></p> <p>Students at Risk of Failure: <i>Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.</i></p> <p>Gifted Students: <i>provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.</i></p>	
Suggested Options for Differentiation	
English Language Learners	
<ul style="list-style-type: none"> ● Preview lessons 	

- Labeled pictures
- Use visuals
- Teacher tutoring
- Modified Assignments

Gifted and Talented

- Higher level questioning
- Students design questions
- Differentiated Assignments
- Choice board to extend learning
- Peer tutoring

Basic Skills/Economically Disadvantaged/Students at Risk

- Highlight key words
- Preview lessons
- Graphic organizers
- Cooperative learning groups

Special Education/504

- Provide differentiated instruction as needed
- Follow all IEP modifications/504 plan
- Pre-teach and model strategies to learn and practice new vocabulary words pertaining to the unit
- Modified assignments

Unit 3 will address the following 21st Century Life and Careers skills:

21st Century Themes

Career Ready Practices

9.1	Personal Financial Literacy		CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers	√	CRP2. Apply appropriate academic and technical skills.
	Money Management		CRP3. Attend to personal health and financial well-being.
	Credit and Debt Management	√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing		CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer	√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility	√	CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting	√	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation	√	CRP9. Model integrity, ethical leadership and effective management.

X	Career Awareness			CRP10. Plan education and career paths aligned to personal goals.
X	Career Exploration		√	CRP11. Use technology to enhance productivity.
X	Career Preparation		√	CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.
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Unit 3 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Engaging in Argument from Evidence Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s). Support an argument with evidence, data, or a model. (5-LS1-1)</p> <p>Developing and Using Models Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. Use models to describe phenomena. (5-PS3-1)</p>	<p>LS1.C: Organization for Matter and Energy Flow in Organisms Plants acquire their material for growth chiefly from air and water. (5-LS1-1)</p> <p>PS3.D: Energy in Chemical Processes and Everyday Life The energy released [from] food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water). (5-PS3-1)</p> <p>LS1.C: Organization for Matter and Energy Flow in Organisms Food provides animals with the materials they need for body repair and growth and the energy they need to maintain body warmth and for motion. (secondary to 5-PS3-1)</p>	<p>Energy and Matter Matter is transported into, out of, and within systems. (5-LS1-1)</p> <p>Energy and Matter Energy can be transferred in various ways and between objects. (5-PS3-1)</p>

Unit 3: Science/5th Grade Energy and Matter in Organisms	Duration: 40-50 Days (December-January)
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Standards:

5-LS1-1 - Support an argument that plants get the materials they need for growth chiefly from air and water.

5-PS3-1 - Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.

Unit Summary: Students will be exposed to energy and matter in organisms. This unit has three lessons attached to it and should be completed in about 40-50 Days. They will be able to investigate how living organisms get energy and explore how living organisms use energy and how they interact in their environments.

NJ Student Learning Standards**Interdisciplinary Skills**

RI.5.2. Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.

RI.5.3. Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.

RI.5.9 Integrate and reflect on (e.g. practical knowledge, historical/cultural context, and background knowledge) information from several texts on the same topic in order to write or speak about the subject knowledgeably.

W.5.10. Write routinely over extended time frames (time for research, reflection, metacognition/self-correction and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

SL.5.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.

Technology

8.1.5.A.1 - Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.

21st Century Life and Career

<ul style="list-style-type: none"> ● CRP2. Apply appropriate academic and technical skills. ● 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. ● CRP9. Model integrity, ethical leadership and effective management. ● CRP11. Use technology to enhance productivity. ● CRP12. Work productively in teams while using cultural global competence. 	
Essential Understandings	Essential Questions
<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> ● Energy gets transformed by plants ● Organisms use matter and energy ● Organisms interact in different ways 	<ul style="list-style-type: none"> ● How does energy get transformed by plants? ● How do organisms use matter and energy? ● How do organisms interact?
Evidence of Student Learning	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p> <ul style="list-style-type: none"> ● Students will conduct an investigation with their team to see how different kinds of light affect plants. 	<p>Other Assessments</p> <p>Formative Assessments</p> <ul style="list-style-type: none"> ● Teacher Observations ● Response Cards ● Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> ● Tests ● Quizzes ● Labs

	Benchmark Assessment <ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark Alternative Assessments <ul style="list-style-type: none"> ● Teacher Observations ● Group Work/Class Work
Vocabulary community/consumer/ecosystem/environment/habitat/niche/photosynthesis/population/predator/prey/producer	
Knowledge and Skills	
Content	Skills
<i>Students will know...</i> <ul style="list-style-type: none"> ● How energy gets transformed by plants ● How organisms use matter and energy ● How organisms interact 	<i>Students will be able to ...</i> <ul style="list-style-type: none"> ● Investigate how living organisms get energy ● Explore how living organisms use energy and how they interact in their environments
Instructional Plan	
Suggested Activities	Resources
<ul style="list-style-type: none"> - Students will model what happens when one key element in photosynthesis is restricted and how it affects plant growth and survival - Students plan and carry out an investigation to determine which type of fruit provides the most energy 	<ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/

<ul style="list-style-type: none"> - Students will develop a research-based model of a one square meter area to find which kinds of organisms interact in that small ecosystem 	<ul style="list-style-type: none"> - www.readworks.org (leveled texts)
<p style="text-align: center;">Literature</p> <ul style="list-style-type: none"> - HMH Dimensions textbook/workbook 	
<p style="text-align: center;">Websites</p> <ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts) 	
<p style="text-align: center;">Modifications</p> <p>Special Education Students / 504 <i>(These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan)</i> reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.</p> <p>English Language learners: <i>use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.</i></p> <p>Students at Risk of Failure: <i>Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.</i></p> <p>Gifted Students: <i>provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.</i></p>	
<p style="text-align: center;">Suggested Options for Differentiation</p>	
<p>English Language Learners</p>	

- Provide pictures and well labeled models
- Speak slowly and gesture when necessary
- Pre-teach vocabulary words
- Extended Time
- Less questions on a page for tests

Gifted and Talented

- Create an enhanced set of introductory activities (e.g. advance organizers, concept maps, concept puzzles)
- Provide options, alternatives and choices to differentiate and broaden the curriculum
- Organize and offer flexible small group learning activities
- Differentiate Assignments
- Complete different homework assignments than peers
- Open ended questions to activate higher level thinking
- Higher level texts

Basic Skills/Economically Disadvantaged/Students at Risk

- Pre-teach vocabulary using visuals and gestures
- Chunk texts
- Highlight key words
- Frequent breaks
- Strategic grouping
- Pre-teach concepts
- Communication logs

Modifications/Accommodations

Special Education/504

- Provide differentiated instruction as needed
- Follow all IEP modifications/504 plan

- Review concepts and important vocabulary from previous lessons before teaching new information
- Check for student understanding often with formal, informal, verbal, and nonverbal measures
- Progress Monitoring
- Strategic grouping
- Pre-teach concepts

Unit 4 will address the following 21st Century Life and Careers skills:

21st Century Themes		Career Ready Practices	
9.1	Personal Financial Literacy		CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers	√	CRP2. Apply appropriate academic and technical skills.
	Money Management		CRP3. Attend to personal health and financial well-being.
	Credit and Debt Management	√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing		CRP5. Consider the environmental, social and economic impacts of decisions.

	Becoming a Critical Consumer		√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility		√	CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting		√	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation			CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness			CRP10. Plan education and career paths aligned to personal goals.
X	Career Exploration			CRP11. Use technology to enhance productivity.
X	Career Preparation		√	CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	B. Creativity and Innovation: Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.
	D. Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
	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.

Unit 4 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Developing and Using Models Modeling in 3–5 builds on K–2 models and progresses to building and revising simple models and using models to represent events and design solutions. Develop a model to describe phenomena. (5-LS2-1) ----- ----- Connections to Nature of Science Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena Science explanations describe the</p>	<p>LS2.A: Interdependent Relationships in Ecosystems The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as “decomposers.” Decomposition eventually restores</p>	<p>Systems and System Models A system can be described in terms of its components and their interactions. (5-LS2- 1)</p>

mechanisms for natural events. (5-LS2-1)	<p>(recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. (5-LS2-1)</p> <p>LS2.B: Cycles of Matter and Energy Transfer in Ecosystems Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Organisms obtain gases, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment. (5-LS2-1)</p>	
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Unit 4: Science/5th Grade	Duration: 20-30 Days (January-February)
Energy and Matter in Ecosystems	
Standards: 5-LS2-1 - Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. 5-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.	

Unit Summary: Students will be exposed to energy and matter in ecosystems. This unit has two lessons attached to it and should be completed in 20-30 Days. They will be able to explore phenomena of predator-prey population interactions and native and invasive species interactions and use models to develop explanations of the energy inputs and energy and matter flows within ecosystems.

NJ Student Learning Standards

Interdisciplinary Skills

RI.5.2. Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.

RI.5.3. Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.

RI.5.9 Integrate and reflect on (e.g. practical knowledge, historical/cultural context, and background knowledge) information from several texts on the same topic in order to write or speak about the subject knowledgeably.

W.5.10. Write routinely over extended time frames (time for research, reflection, metacognition/self-correction and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

SL.5.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.

Technology

8.1.5.A.1 - Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.

21st Century Life and Career

- CRP2. Apply appropriate academic and technical skills.
- 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.

<ul style="list-style-type: none"> CRP12. Work productively in teams while using cultural global competence. 	
Essential Understandings	Essential Questions
<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> Energy and matter move through ecosystems Organisms change their ecosystems 	<ul style="list-style-type: none"> How do energy and matter move through ecosystems? How do organisms change their ecosystems?
Evidence of Student Learning	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p> <ul style="list-style-type: none"> Students will conduct an investigation with their team where they will research how organisms at an African watering hole interact. 	<p>Other Assessments</p> <p>Formative Assessments</p> <ul style="list-style-type: none"> Interactive Notebook Performance Assessments Exit Slips <p>Summative Assessments</p> <ul style="list-style-type: none"> Tests Hands-On Activities Summary <p>Benchmark Assessment</p> <ul style="list-style-type: none"> Beginning of the Year Benchmark Mid-Year Benchmark End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> Teacher Observations

	<ul style="list-style-type: none"> • Group Work/Class Work
Vocabulary decomposer/energy pyramid/food chain/food web/invasive species/scavenger	
Knowledge and Skills	
Content	Skills
<i>Students will know....</i> <ul style="list-style-type: none"> • How energy and matter move through ecosystems • How organisms change their ecosystems 	<i>Students will be able to ...</i> <ul style="list-style-type: none"> • Explore phenomena of predator-prey population interactions and native and invasive species interactions • Use models to develop explanations of the energy inputs and energy and matter flows within ecosystems
Instructional Plan	
Suggested Activities <ul style="list-style-type: none"> • Students will develop a research-based model of a specific ecosystem and use it to explore ecosystem interactions • Model how invasive species affect the food supply of an ecosystem 	Resources <ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
Literature <ul style="list-style-type: none"> - HMH Dimensions Textbook/Workbook 	
Websites <ul style="list-style-type: none"> - www.brainpop.com 	

- www.newsela.com (leveled texts)
- <https://www.teachengineering.org/>
- www.readworks.org (leveled texts)

Modifications

Special Education Students / 504 (*These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan*) reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.

English Language learners: *use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.*

Students at Risk of Failure: *Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.*

Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

Suggested Options for Differentiation

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

Gifted and Talented

- Organize and offer flexible small group learning activities
- Teach cognitive and methodological skills
- Use centers

Basic Skills/Economically Disadvantaged/Students at Risk

- Strategic grouping
- Pre-teach concepts
- Small group for assessments
- Check in's during experiments to help refocus
- Communication logs

Special Education/504

- Follow all IEP modifications/504 plan
- Provide visual aids to support concepts being taught
- Use graphic organizers to help students organize important information from a lesson
- Reword Directions
- Strategic grouping
- Pre-teach concepts
- Small group for assessments
- Check in's during experiments to help refocus

Unit 5 will address the following 21st Century Life and Careers skills:

21st Century Themes		Career Ready Practices	
9.1	Personal Financial Literacy		CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers	√	CRP2. Apply appropriate academic and technical skills.

	Money Management			CRP3.Attend to personal health and financial well-being.
	Credit and Debt Management		√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing		√	CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer		√	CRP6. Demonstrate creativity and innovation.
	Civic Financial Responsibility		√	CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting		√	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation			CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness			CRP10. Plan education and career paths aligned to personal goals.

X	Career Exploration		√	CRP11. Use technology to enhance productivity.
X	Career Preparation		√	CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.
	D. Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
	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.

Unit 5 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Engaging in Argument from Evidence Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s). Support an argument with evidence, data, or a model. (5- PS2-1)</p> <p>Analyzing and Interpreting Data Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used. Represent data in graphical displays (bar graphs, pictographs and/or pie charts) to reveal patterns that indicate relationships. (5-ESS1-2)</p> <p>Engaging in Argument from Evidence Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s). Support an argument with evidence, data, or a model. (5- ESS1-1)</p>	<p>PS2.B: Types of Interactions The gravitational force of Earth acting on an object near Earth’s surface pulls that object toward the planet’s center. (5-PS2-1)</p> <p>ESS1.A: The Universe and its Stars The sun is a star that appears larger and brighter than other stars because it is closer. Stars range greatly in their distance from Earth. (5-ESS1-1)</p> <p>ESS1.B: Earth and the Solar System The orbits of Earth around the sun and of the moon around Earth, together with the rotation of Earth about an axis between its North and South poles, cause observable patterns. These include day and night; daily changes in the length and direction of shadows; and different positions of the sun, moon, and stars at different times of the day, month, and year. (5-ESS1-2)</p>	<p>Cause and Effect Cause and effect relationships are routinely identified and used to explain change. (5-PS2-1)</p> <p>Patterns Similarities and differences in patterns can be used to sort, classify, communicate and analyze simple rates of change for natural phenomena. (5- ESS1-2)</p> <p>Scale, Proportion, and Quantity Natural objects exist from the very small to the immensely large. (5-ESS1- 1)</p>

Unit 5: Science/5th Grade Systems in Space	Duration: 20-30 Days (March-April)
Unit Summary: Students will be exposed to systems in space. This unit has four lessons attached to it and should be completed in 20-30 Days. They will be able to use evidence to explain that Earth's orbit, the moon's orbit, and Earth's rotation cause predictable patterns, explain why the sun appears so large and bright from Earth, and explain that Earth is a sphere and that gravity pulls objects toward Earth's center.	
Standards: 5-PS2-1 - Support an argument that the gravitational force exerted by Earth on objects is directed down. 5-ESS1-1 - Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from the Earth. 5-ESS1-2 - Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.	
NJ Student Learning Standards	
<p style="text-align: center;">Interdisciplinary Skills</p> <p>RI.5.2. Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.</p> <p>RI.5.3. Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.</p> <p>RI.5.9 Integrate and reflect on (e.g. practical knowledge, historical/cultural context, and background knowledge) information from several texts on the same topic in order to write or speak about the subject knowledgeably.</p> <p>W.5.10. Write routinely over extended time frames (time for research, reflection, metacognition/self-correction and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</p>	

SL.5.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.

Technology

8.1.5.A.1 - Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.

21st Century Life and Career

- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP5. Consider the environmental, social and economic impacts of decisions.
- 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.
- CRP11. Use technology to enhance productivity.
- CRP12. Work productively in teams while using cultural global competence.

Essential Understandings	Essential Questions
<i>Students will understand that...</i> <ul style="list-style-type: none">● Gravity affects matter on Earth● There are daily patterns that can be observed in the sky● There are patterns that can be observed over the course of a year● What the sun is	<ul style="list-style-type: none">● How does gravity affect matter on Earth?● What daily patterns can be observed?● What patterns can be observed in a year?● What is the sun?
Evidence of Student Learning	
Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i>	Other Assessments Formative Assessments <ul style="list-style-type: none">● Interactive Notebook

<ul style="list-style-type: none"> Students will construct a seasonal star guide with their team. 	<ul style="list-style-type: none"> Performance Assessments Exit Slips Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> Quizzes Summary Labs <p>Benchmark Assessment</p> <ul style="list-style-type: none"> Beginning of the Year Benchmark Mid-Year Benchmark End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> Teacher Observations Participation Rubric Group Work/Class Work
<p style="text-align: center;">Vocabulary</p> <p style="text-align: center;">axis/constellation/gravity/hemisphere/orbit/revolution/rotation</p>	
<p style="text-align: center;">Knowledge and Skills</p>	
<p style="text-align: center;">Content</p>	<p style="text-align: center;">Skills</p>
<p><i>Students will know....</i></p> <ul style="list-style-type: none"> How gravity affects matter on Earth What daily patterns can be observed in the sky What patterns can be observed over the course of a year 	<p><i>Students will be able to ...</i></p> <ul style="list-style-type: none"> Use evidence to explain that Earth's orbit, the moon's orbit, and Earth's rotation cause predictable patterns

<ul style="list-style-type: none"> • What the sun is 	<ul style="list-style-type: none"> • Explain why the sun appears so large and bright from Earth • Explain that Earth is a sphere and that gravity pulls objects toward Earth's center
Instructional Plan	
<p style="text-align: center;">Suggested Activities</p> <ul style="list-style-type: none"> • Collaborate to learn how gravity affects objects on Earth's surface using a model of the Earth • Create a sundial and use it to record data about how shadows change throughout the day • Collect data that shows sunrise and sunset times over a period of three years to demonstrate the crosscutting concept of patterns • Design and build a spectroscope and use it to analyze lights on a spectrum 	<p style="text-align: center;">Resources</p> <ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
Literature	
<ul style="list-style-type: none"> - HMH Dimensions Textbook/Workbook 	
Websites	
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Modifications	
<p>Special Education Students / 504 <i>(These are just suggested ideas to modify instruction. All modifications and accommodations should be specific to each student's IEP or 504 plan)</i> reduce/revise assignments & assignments as per IEP; provide individual and small group assistance; notes, and study guides; provide background knowledge.</p>	

English Language learners: *use consistent, simplified language; provide bilingual when appropriate; provide cooperative learning opportunities, use modeling, visual aids, and manipulatives.*

Students at Risk of Failure: *Provide less distracting seating if possible, frequent check-in by teacher, study guides, notes, etc.*

Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

Suggested Options for Differentiation

English Language Learners

- Provide pictures and well labeled models
- Speak slowly and gesture when necessary
- Extended time on assessments
- Small group for assessment

Gifted and Talented

- Differentiate Assignments
- Differentiate Texts
- Complete Different Homework than peers

Basic Skills/Economically Disadvantaged/Students at Risk

- Graphic organizers
- Build background knowledge
- Increased parent communication
- Strategic grouping
- Pre-teach concepts
- Small group for assessments

Special Education/504

- Follow all IEP modifications/504 plan
- Provide manipulatives or the opportunity to draw solution strategies
- Pre-Teach concepts

- Extended Time
- Strategic grouping
- Small group for assessments
- Check in's during experiments to help refocus

Unit 6 will address the following 21st Century Life and Careers skills:

21st Century Themes		Career Ready Practices	
9.1	Personal Financial Literacy		CRP1. Act as a responsible and contributing citizen and employee.
	Income and Careers	√	CRP2. Apply appropriate academic and technical skills.
	Money Management		CRP3. Attend to personal health and financial well-being.
	Credit and Debt Management	√	CRP4. Communicate clearly and effectively and with reason.
	Planning, Saving, and Investing	√	CRP5. Consider the environmental, social and economic impacts of decisions.
	Becoming a Critical Consumer	√	CRP6. Demonstrate creativity and innovation.

	Civic Financial Responsibility		√	CRP7. Employ valid and reliable research strategies.
	Insuring and Protecting		√	CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
9.2	Career Awareness, Exploration, and Preparation			CRP9. Model integrity, ethical leadership and effective management.
X	Career Awareness			CRP10. Plan education and career paths aligned to personal goals.
X	Career Exploration		√	CRP11. Use technology to enhance productivity.
X	Career Preparation		√	CRP12. Work productively in teams while using cultural global competence.

Technology

	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.
	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.
	D. Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
	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.

Unit 6 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Developing and Using Models Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. Develop a model using an example to describe a scientific principle. (5-ESS2-1)</p> <p>Using Mathematics and Computational Thinking Mathematical and computational thinking in 3–5 builds on K–2 experiences and progresses to extending quantitative</p>	<p>ESS2.A: Earth Materials and Systems Earth’s major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth’s surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms</p>	<p>Scale, Proportion, and Quantity Standard units are used to measure and describe physical quantities such as weight and volume. (5-ESS2-2)</p> <p>Systems and System Models A system can be described in terms of its components and their interactions. (5-ESS2-1)</p>

measurements to a variety of physical properties and using computation and mathematics to analyze data and compare alternative design solutions. Describe and graph quantities such as area and volume to address scientific questions. (5-ESS2-2)	to determine patterns of weather. (5-ESS2-1) ESS2.C: The Roles of Water in Earth's Surface Processes Nearly all of Earth's available water is in the ocean. Most fresh water is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere. (5-ESS2-2)	
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Unit 6: Science/5th Grade Earth's Systems	Duration: 20-30 Days (April-May)
Unit Summary: Students will be exposed to Earth's systems. This unit has three lessons attached to it and should be completed in 20-30 Days. They will be able to explore the hydrosphere, geosphere, biosphere, and atmosphere and learn how Earth's systems interact.	
Standards: 5-ESS2-1 - Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact. 5-ESS2-2 - Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.	
NJ Student Learning Standards	
<p style="text-align: center;">Interdisciplinary Skills</p> <p>RI.5.2. Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.</p> <p>RI.5.3. Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.</p>	

RI.5.9 Integrate and reflect on (e.g. practical knowledge, historical/cultural context, and background knowledge) information from several texts on the same topic in order to write or speak about the subject knowledgeably.

W.5.10. Write routinely over extended time frames (time for research, reflection, metacognition/self-correction and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

SL.5.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.

Technology

8.1.5.A.1 - Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.

21st Century Life and Career

- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP5. Consider the environmental, social and economic impacts of decisions.
- 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.
- CRP11. Use technology to enhance productivity.
- CRP12. Work productively in teams while using cultural global competence.

Essential Understandings	Essential Questions
<p><i>Students will understand that...</i></p> <ul style="list-style-type: none">● The Earth has 4 major systems● The 4 major systems on Earth interact with one another● The ocean plays a role in the Earth's systems	<ul style="list-style-type: none">● What are Earth's major systems?● How do Earth's systems interact?● What is the role of the oceans in Earth's system?

Evidence of Student Learning	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p> <ul style="list-style-type: none"> Students will investigate and design a solution with their team to remove salt to make salt water drinkable. 	<p>Other Assessments</p> <p>Formative Assessments</p> <ul style="list-style-type: none"> Teacher Observations Interactive Notebook Performance Assessments <p>Summative Assessments</p> <ul style="list-style-type: none"> Tests Summary Hands-On Activities <p>Benchmark Assessment</p> <ul style="list-style-type: none"> Beginning of the Year Benchmark Mid-Year Benchmark End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> Teacher Observations Participation Rubric Group Work/Class Work
<p>Vocabulary</p> <p>atmosphere/biosphere/coastline/condensation/evaporation/geosphere/hydrosphere/precipitation/system/water cycle</p>	
<p>Knowledge and Skills</p>	

Content	Skills
<p><i>Students will know....</i></p> <ul style="list-style-type: none"> ● The 4 major systems on Earth ● How the 4 major systems on Earth interact ● The role the oceans play in Earth's major systems 	<p><i>Students will be able to ...</i></p> <ul style="list-style-type: none"> ● Explore the hydrosphere, geosphere, biosphere, and atmosphere ● Learn how Earth's systems interact
Instructional Plan	
<p>Suggested Activities</p> <ul style="list-style-type: none"> ● Make a scale model of the Earth's layers ● Model the influence of oceans on the water cycle ● Develop and use a model to explore how the oceans shape shorelines 	<p>Resources</p> <ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
Literature	
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Gifted Students: *provide additional enrichment activity involving demonstrating knowledge, deeper research to answer a higher level questions, or complimentary assignment.*

Suggested Options for Differentiation

English Language Learners

- Provide pictures and well labeled models
- Speak slowly and gesture when necessary
- Extended time on assessments
- Small group for assessment

Gifted and Talented

- Differentiate Assignments
- Differentiate Texts
- Complete Different Homework than peers

Basic Skills/Economically Disadvantaged/Students at Risk

- Graphic organizers
- Build background knowledge
- Increased parent communication
- Strategic grouping
- Pre-teach concepts
- Small group for assessments

Special Education/504

- Follow all IEP modifications/504 plan
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- Pre-Teach concepts

- Extended Time
- Strategic grouping
- Small group for assessments
- Check in's during experiments to help refocus

Unit 7 Disciplinary Core Ideas Chart

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Obtaining, Evaluating, and Communicating Information Obtaining, evaluating, and communicating information in 3– 5 builds on K–2 experiences and progresses to evaluating the merit and accuracy of ideas and methods. Obtain and combine information from books and/or other reliable media to explain phenomena or solutions to a design problem. (5-ESS3-1)	ESS3.C: Human Impacts on Earth Systems Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments. (5-ESS3-1)	Systems and System Models A system can be described in terms of its components and their interactions. (5-ESS3-1) ----- ----- Connections to Nature of Science Science Addresses Questions About the Natural and Material World. Science findings are limited to questions that can be answered with empirical evidence. (5-ESS3-1)

Unit 7: Science/5th Grade	Duration: 20-30 Days (May-June)
Earth and Human Activities	
Unit Summary: Students will be exposed to Earth and human activities. This unit has two lessons attached to it and should be completed in 20-30 Days. They will be able to explore how human activity affects the Earth and its systems and learn about ways to keep Earth and its systems healthy.	
Standards: 5-ESS3-1 - Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.	

NJ Student Learning Standards

Interdisciplinary Skills

RI.5.2. Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.

RI.5.3. Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.

RI.5.9 Integrate and reflect on (e.g. practical knowledge, historical/cultural context, and background knowledge) information from several texts on the same topic in order to write or speak about the subject knowledgeably.

W.5.10. Write routinely over extended time frames (time for research, reflection, metacognition/self-correction and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

SL.5.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.

Technology

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- CRP11. Use technology to enhance productivity.
- CRP12. Work productively in teams while using cultural global competence.

Essential Understandings	Essential Questions
<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> ● Resource use affects the Earth ● There are different ways that people can protect the environment 	<ul style="list-style-type: none"> ● How does resource use affect Earth? ● How can people protect the Environment?
Evidence of Student Learning	
<p>Performance Tasks: <i>Activities to provide evidence for student learning of content and cognitive skills.</i></p> <ul style="list-style-type: none"> ● Students will conduct an investigation with their team to find out the total amount of recyclable material they will use in their life. 	<p>Other Assessments</p> <p>Formative Assessments</p> <ul style="list-style-type: none"> ● Exit Slips ● Response Cards ● Graphic Organizers <p>Summative Assessments</p> <ul style="list-style-type: none"> ● Quizzes ● Summary ● Labs <p>Benchmark Assessment</p> <ul style="list-style-type: none"> ● Beginning of the Year Benchmark ● Mid-Year Benchmark ● End of the Year Benchmark <p>Alternative Assessments</p> <ul style="list-style-type: none"> ● Participation Rubric ● Teacher Observations ● Group Work/Class Work

Vocabulary biodegradable/conserve/decompose/natural resource/pollution/population/recycle/reduce/reuse	
Knowledge and Skills	
Content	Skills
<i>Students will know....</i> <ul style="list-style-type: none"> • How resource use affects the Earth • How people can protect the environment 	<i>Students will be able to ...</i> <ul style="list-style-type: none"> • Explore how human activity affects the Earth and its systems • Learn about ways to keep Earth and its systems healthy
Instructional Plan	
Suggested Activities <ul style="list-style-type: none"> • Design a method for filtering dirty water • Conduct research in order to plan and design a pocket park with a community garden to help the environment and increase green space in an urban area 	Resources <ul style="list-style-type: none"> - www.brainpop.com - www.newsela.com (leveled texts) - https://www.teachengineering.org/ - www.readworks.org (leveled texts)
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