

**East Newark Public School**

**Science Curriculum**

**Grade 2**



**Equity Statement:**

East Newark Public School District does not discriminate on the basis of race, color, creed, religion, sex, ancestry, or national origin. The East Newark Board of Education ensures that all students enrolled in the schools of this district shall be afforded equal educational opportunities in strict accordance with the law. No student shall be denied access to or benefit from any educational program or activity on the basis of the student's race, color, creed, religion, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, gender identity or expression, socioeconomic status, or disability. The Board directs the Superintendent to allocate faculty, administrators, support staff members, curriculum materials, and instructional equipment supplies among classes of this district in a manner that ensures equivalency of educational opportunity throughout this district. The school district's curricula will eliminate discrimination, promote mutual acceptance and respect among students, and enable students to interact effectively with others, regardless of race, color, creed, religion, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, gender identity or expression, socioeconomic status, or disability.

**Course Description:**

The East Newark Public School second grade science program is designed to introduce and develop a foundation in science through four major units of study. Students will gain an understanding of many important areas of Life, Earth, and Physical Sciences, and will utilize and understand scientific processes. All courses are designed to prepare students for their school science courses and for solving simple scientific problems and issues in their everyday lives.

The material is presented at a moderate pace and can be adjusted for various levels taught. Lessons are based on discussions and student-driven activities. Hands-on activities are meant to show connections to real-life science applications, and to promote critical thinking and problem solving skills. Students who are placed in this course based on ESL placement will also receive appropriate accommodations based upon their ESL level. Students receiving Special Education services will receive modifications and accommodations to information and assessments as indicated in their Individual Education Plan.

**Course Modifications:**

The course instructor will determine, with the assistance of administrators, teacher assistants/aides, educational specialists, and/or special education teachers, what modifications will be made for his/her students. Such examples of modifications can include, but not be limited to:

- Extended time as needed
- Modification of tests and quizzes
- Preferential seating
- Alternative/Formative assessment (projects)
- Effective teacher questioning (ranging from simple recall to higher order critical thinking questions)
- Supplemental materials
- Cooperative learning
- Teacher tutoring
- Peer tutoring
- Differentiated Instruction

**Best Practices:**

Best practices come from research-based, effective methodologies in presenting material in a manner to engage all students in the learning process. Thorough planning and collaborative discussions about instructional practices are part of the ongoing practice of teachers. Student activities and practices that reflect effective methodology include, but are not limited to, providing students with:

- Regular opportunities to investigate topics in depth
- The ability to exercise choice and responsibility by choosing their own topics
- Opportunities for active participation in the classroom and the community
- Exploration of open-ended questions that challenge their thinking
- Opportunities for reading, writing, observing, discussing, and debating ideas
- Activities that include independent inquiry and cooperative learning
- Assessment of student learning that promotes lifelong responsible citizenship rather than the sole memorization of facts
- Strategies and tools to read and comprehend informational text

**Grade 2 Scope and Sequence:**

Unit	Estimated Pacing
General Science	7 weeks
Structure and Properties of Matter	8 weeks
Interdependent Relationships in Ecosystems	9 weeks
Earth's Systems: Process that Shape the Earth	10 weeks

Marking Period	Unit Title	Recommended Instructional Days
1	General Science	7 weeks
NJSL-S - Science: <i>Title</i>	NJSL-S - Science: <i>Performance Expectations</i>	Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSL-S within Unit
Engineering Design	<ul style="list-style-type: none"> <li>● <b>K-2-ETS1-1:</b> 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.</li> <li>● <b>K-2-ETS1-2:</b> 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.</li> <li>● <b>K-2-ETS1-3:</b> Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</li> </ul>	<p><b>Essential Question/s:</b></p> <ol style="list-style-type: none"> <li>1. What is Science?</li> <li>2. What is Engineering?</li> <li>3. How do scientists and engineers solve problems?</li> <li>4. What makes someone a successful scientist or engineer?</li> <li>5. How does a group run smoothly?</li> <li>6. How does a lunchbox keep things cold?</li> <li>7. Why do we see patterns in nature?</li> <li>8. How does a scale measure weight?</li> </ol> <p><b>Activity Description:</b></p> <ul style="list-style-type: none"> <li>● Article analysis</li> <li>● Vocabulary activities</li> <li>● Video/photo analysis</li> <li>● Weekly Phenomenon Investigation: How do scientists and engineers solve problems?</li> <li>● Discuss: Which science or engineering job sounds interesting to you? Why? What do you have in common with a good scientist? What skills do you have that could help you be a good engineer? How can knowing about cause and effect help you in your relationships with peers?</li> <li>● Explore science tools and resources; conduct tests using the materials</li> <li>● Writing prompt: Write an “A Day in the Life of a(n) _____” narrative, detailing what a person in the field of science or engineering does for their job.</li> <li>● Weekly Phenomenon Investigation: What makes someone a successful scientist or engineer?</li> </ul>
FOUNDATION Disciplinary: <i>Core Idea</i>	FOUNDATION Disciplinary: <i>Statement</i>	
ETS1.A: Defining and Delimiting Engineering Problems	<ul style="list-style-type: none"> <li>● A situation that people want to change or create can be approached as a problem to be solved through engineering.</li> <li>● Asking questions, making observations, and gathering information are helpful in thinking about problems.</li> <li>● Before beginning to design a solution, it is important to clearly understand the problem.</li> </ul>	
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.	<ul style="list-style-type: none"> <li>● Discuss: What character traits do you have to help you be a good scientist and engineer? Which traits do you want to improve on? How can thinking like a scientist help you with your relationships with friends? How can thinking like an engineer help you with school work? How can fixed mindset thinking impact your skills? How can growth mindset thinking impact your skills?</li> <li>● Empathy Action Plan</li> <li>● Nature Walk - Collect “curiosity items.” Debrief Whole-Class: Share why you picked the item and what about it made you pick it up. Ask students: What made you curious about the item?</li> <li>● Accuracy and Precision - Leaf Drawing Activity</li> <li>● Alexander Graham Bell investigation</li> <li>● Writing prompt: Write a narrative about yourself that shows the character traits and mindsets you have.</li> <li>● Weekly Phenomenon Investigation: How does a group run smoothly?</li> <li>● Discuss: How can you be a good team member? How does collaboration help you contribute to your team? Who benefits when people can collaborate effectively? How does compromise affect your well-being? What can you do if you are having a hard time with cooperation or collaboration? How do community members benefit from working together?</li> <li>● Collaborative drawing activity</li> <li>● Class discussion simulation activity</li> <li>● Group challenge: “Building Blocks.” - Students build some buildings with plastic building blocks, but have to copy the building block structure from one that is already built. Also, not everyone in the group will get to see that building. In order to pass the challenge, the group will have to cooperate. Each group member will have jobs (ex: designer, messenger, builder). Debrief: How did you do with cooperation? What went well? What didn’t go well? How can you improve your cooperation in the future?</li> <li>● Opposing Opinions simulation activity</li> <li>● Wants and Needs Sort</li> <li>● Compromise simulation activity</li> <li>● Writing prompt: Write an informative piece telling another second-grader how to be a good team member.</li> <li>● Weekly Phenomenon Investigation: How does a lunchbox keep things cold?</li> <li>● Discuss: How are you an engineer? What are some ways you like to improve your area? (School, home, work, play) When you have a conflict with your friends, what types of things help you find a</li> </ul>
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.	
<b>FOUNDATION Science and Engineering Practices: Core Idea</b>	<b>FOUNDATION Science and Engineering Practices: Statement</b>	
Asking Questions and Defining Problems	<ul style="list-style-type: none"> <li>● Ask questions based on observations to find more information about the natural and/or designed world(s).</li> <li>● Define a simple problem that can be solved through the development of a new or improved object or tool.</li> </ul>	
Developing and Using Models	Develop a simple model based on evidence to represent a proposed object or tool.	
Analyzing and Interpreting Data	Analyze data from tests of an object or tool to determine if it works as intended.	
<b>FOUNDATION Crosscutting Concepts: Core Idea</b>	<b>FOUNDATION Crosscutting Concepts: Statement</b>	
Structure and Function	The shape and stability of structures of natural and designed objects are related to their function(s).	
<b>Social and Emotional Learning: Competencies</b>	<b>Social and Emotional Learning: Sub-Competencies</b>	
<ul style="list-style-type: none"> <li>● Self-Awareness</li> <li>● Self-Management</li> <li>● Responsible Decision Making</li> <li>● Social Awareness</li> <li>● Relationship Skills</li> <li>● Motivation</li> </ul>	<ul style="list-style-type: none"> <li>● Emotional Awareness</li> <li>● Internal Regulation</li> <li>● Behavior Control</li> <li>● Goal Pursuance</li> <li>● Appreciating Social and Environment Diversity</li> <li>● Adaptive Behavior</li> <li>● Communication</li> <li>● Social Engagement</li> <li>● Constructive Thinking</li> <li>● Consequence Evaluation</li> </ul>	

- Respect for Self and Others
- Enthusiasm
- Initiative
- Resilience

solution? In what ways does thinking like an engineer help you make things better?

- Engineering Design: Create a lunch box that will keep food cool. Complete a graphic organizer to sort ideas. Once their lunchbox is created, students will be testing it with a frozen water bottle inside to see if it stays cold.
- Weekly Phenomenon Investigation: Why do we see patterns in nature?
- Discuss: What does cause and effect have to do with your own life? If you treat someone with kindness, what effect do you think that has? If you treat someone unkindly, what effect do you think that might have? What effects do you see when you take care of your well-being? What kinds of patterns do you see in your behavior toward others? Do you think you need to change any of those patterns?
- Playground Cause and Effect: Choose a movement you can do on the playground (e.g., push a swing or jump high) and record the movement as the “cause.” See what happens right after your movement. Record this as the “effect.”
- Structure and Function Investigation
- Stability and Change Questionnaire
- Energy Experiment Lab
- Is It Technology? Investigation
- Writing prompt: Write a narrative biography about an engineer or scientist who changed the world.
- Weekly Phenomenon Investigation: How does a scale measure weight?
- Discuss: What data do your friends have that tell them you are a good friend? Is there anything you think you should change about your behavior to improve their data?
- Measure Exploration
- U.S. Customary Measuring Exploration
- Metric System Measuring Exploration
- Rounding, Estimating, and Measuring Length
- School Route Measurement Exploration
- Writing prompt: In your opinion, should Americans continue to use the customary system or should they switch to the metric system? Why or why not?

**Interdisciplinary Connections: Content: ;NJSL#:**

ELA/Literacy -

		<ul style="list-style-type: none"> <li>● RI.2.1 - Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.</li> <li>● W.2.6 - With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.</li> <li>● W.2.8 - Recall information from experiences or gather information from provided sources to answer a question.</li> <li>● SL.2.5 - Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.</li> </ul> <p>Mathematics -</p> <ul style="list-style-type: none"> <li>● MP.2 - Reason abstractly and quantitatively.</li> <li>● MP.4 - Model with mathematics.</li> <li>● MP.5 - Use appropriate tools strategically.</li> <li>● 2.MD.D.10 - Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.</li> </ul> <p>Technology -</p> <ul style="list-style-type: none"> <li>● 8.1.2.DA.3: Identify and describe patterns in data visualizations.</li> <li>● 8.1.2.DA.4: Make predictions based on data using charts or graphs.</li> </ul>	
<p align="center"><b>Assessments (Formative)</b> <i>To show evidence of meeting the standard/s, students will successfully engage within:</i></p>		<p align="center"><b>Assessments (Summative)</b> <i>To show evidence of meeting the standard/s, students will successfully complete:</i></p>	
<p><b><u>Formative Assessments:</u></b></p> <ul style="list-style-type: none"> <li>● Participation in class discussions/debates</li> <li>● Exit tickets</li> <li>● Quizzes</li> <li>● In-class assignments/activities</li> <li>● Presentations</li> <li>● Group assignments</li> <li>● IXL results</li> </ul>		<p><b><u>Benchmarks:</u></b></p> <ul style="list-style-type: none"> <li>● Writing prompts</li> <li>● Mid-Unit Assessments</li> </ul> <p><b><u>Summative Assessments:</u></b></p> <ul style="list-style-type: none"> <li>● Unit test</li> <li>● Unit project</li> <li>● Lab activities</li> </ul>	
<p align="center"><b>Differentiated Student Access to Content: Teaching and Learning Resources/Materials</b></p>			
<p align="center"><b>Core Resources</b></p>	<p align="center"><b>Alternate Core Resources IEP/504/At-Risk/ESL</b></p>	<p align="center"><b>ELL Core Resources</b></p>	<p align="center"><b>Gifted &amp; Talented Core Resources</b></p>

<ul style="list-style-type: none"> <li>Science Studies Weekly - Grade Two</li> <li>Teacher created reading guides and presentations</li> </ul>	<ul style="list-style-type: none"> <li>Modified/leveled readings from Science Studies Weekly - Grade Two</li> <li>Teacher created reading guides and presentations</li> </ul>	<ul style="list-style-type: none"> <li>Translated and modified readings from Science Studies Weekly - Grade Two</li> <li>Translated teacher created reading guides and presentations</li> </ul>	<ul style="list-style-type: none"> <li>Science Studies Weekly - Grade Two</li> <li>Teacher created reading guides and presentations</li> </ul>
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**Supplemental Resources**

<ul style="list-style-type: none"> <li>Chromebooks</li> <li>SmartBoard</li> <li>IXL</li> <li>Teacher Online Resources</li> <li>Science A-Z</li> <li>Newsela.com</li> <li>Kahoot</li> <li>BrainPop</li> <li>Applicable educational videos</li> </ul>
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**Differentiated Student Access to Content:  
Recommended *Strategies & Techniques***

<b>Core Resources</b>	<b>Alternate Core Resources <i>IEP/504/At-Risk/ESL</i></b>	<b>ELL Core Resources</b>	<b>Gifted &amp; Talented Core</b>
<ul style="list-style-type: none"> <li>Encourage creative expression and thinking by allowing students to choose how to approach a problem or assignment.</li> <li>Jigsaws</li> <li>Think-Pair-Share</li> <li>Boost engagement with material by providing opportunities for differentiation, group work, and alternative assignments/assessments where appropriate</li> <li>Provide feedback utilizing a growth mindset and praise what is done correctly based upon effort, attitude and strategy.</li> </ul>	<ul style="list-style-type: none"> <li>Provide graphic organizers for additional support or encourage students to create digital multimedia to showcase knowledge.</li> <li>Use prompts and model directions</li> <li>Provide opportunities to model talk during read alouds, and scaffold talk during whole class and small group discussions</li> <li>Extended time for revisions or opportunity to identify and develop areas of personal interest</li> </ul>	<ul style="list-style-type: none"> <li>Utilize visual supports and graphic organizers</li> <li>Use prompts and model directions</li> <li>Provide opportunities to model talk during read alouds, and scaffold talk during whole class and small group discussions</li> <li>Device used for translation purposes</li> <li>Provide additional wait time for student responses to questions to allow students the ability to undergo the process of translation between languages, composition of response and attempted response.</li> </ul>	<ul style="list-style-type: none"> <li>Encourage students to explore concepts in depth and encourage independent studies or investigations.</li> <li>Modeling or independent student-led research</li> <li>Use of higher leveled text and/or writing assignments</li> <li>Utilize differentiation in the areas of acceleration, enrichment, and grouping</li> </ul>

	<b>Disciplinary Concept:</b>	
	<b>Core Ideas:</b>	Critical thinkers must first identify a problem then develop a plan to address it to effectively solve the problem.



<b>NJSLS CAREER READINESS, LIFE LITERACIES &amp; KEY SKILLS</b>	<b>Performance Expectation/s:</b>	<ul style="list-style-type: none"> <li>● 9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem.</li> <li>● 9.4.2.CT.2: Identify possible approaches and resources to execute a plan.</li> <li>● 9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).</li> </ul>
	<b>Career Readiness, Life Literacies, &amp; Key Skills Practices</b>	
	<ul style="list-style-type: none"> <li>● Act as a responsible and contributing community members and employee.</li> <li>● Attend to financial well-being.</li> <li>● Consider the environmental, social and economic impacts of decisions.</li> <li>● Demonstrate creativity and innovation.</li> <li>● Utilize critical thinking to make sense of problems and persevere in solving them.</li> <li>● Model integrity, ethical leadership and effective management</li> <li>● Plan education and career paths aligned to personal goals.</li> <li>● Use technology to enhance productivity increase collaboration and communicate effectively.</li> <li>● Work productively in teams while using cultural/global competence.</li> </ul>	

Marking Period	Unit Title	Recommended Instructional Days
2	Structure and Properties of Matter	8 weeks
NJSLS - Science: <i>Title</i>	NJSLS - Science: <i>Performance Expectations</i>	Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-S within Unit
Matter and Its Interactions	<ul style="list-style-type: none"> <li>● <b>2-PS1-1:</b> Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.</li> <li>● <b>2-PS1-2:</b> Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.</li> <li>● <b>2-PS1-3:</b> 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.</li> </ul>	<p><b><u>Essential Question/s:</u></b></p> <ol style="list-style-type: none"> <li>1. What is matter?</li> <li>2. What is a solid?</li> <li>3. What is a liquid?</li> <li>4. Why does the same volume of liquid look different in various containers?</li> <li>5. What properties does a basketball have to help it function?</li> <li>6. What material is the best thermal insulator for a water bottle?</li> <li>7. What material will best hit various targets using a catapult?</li> <li>8. How can a newspaper turn into an egg carton?</li> <li>9. Does elephant toothpaste show a reversible or irreversible change in matter?</li> </ol>

	<ul style="list-style-type: none"> <li>● <b>2-PS1-4:</b> Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.</li> </ul>	<p><b>Activity Description:</b></p> <ul style="list-style-type: none"> <li>● Article analysis</li> <li>● Vocabulary activities</li> <li>● Video/photo analysis</li> <li>● Weekly Phenomenon Investigation: Why does the same volume of liquid look different in various containers?</li> <li>● Discuss: Give examples of some of your favorite things in each state of matter. How does understanding properties of matter help you? Molecules move fast or slow depending on what state of matter they are in. What are some things you do quickly and slowly?</li> <li>● Matter Activity: Students will look for solids around the classroom. In their interactive notebooks, have students write or draw five or more solids they can find in the classroom.</li> <li>● Act out the motion of solids, liquids, and gases</li> <li>● Differentiate between mixtures and solutions</li> <li>● Use a Venn diagram to compare and contrast Heterogeneous &amp; Homogeneous Mixtures</li> <li>● Write using evidence: Give an example of each state of matter, and use evidence to show how you know it is that particular state.</li> <li>● Weekly Phenomenon Investigation: What properties does a basketball have to help it function?</li> <li>● Discuss: How flexible are you? What is your favorite smell? What is your least favorite texture? How would you describe yourself to someone else?</li> <li>● Sorting by Property Activity</li> <li>● Measurable Properties Activity - Measure the length, weight, and temperature of a basketball; approximate volume and density.</li> <li>● Writing prompt: Pick two objects. Write about what properties they have in common, and what properties they have that are different.</li> <li>● Weekly Phenomenon Investigation: What material is the best thermal insulator for a water bottle?</li> <li>● Discuss: What kinds of clothing can be thermal insulators? What can you do if you do not have warm clothing but you need it? How does thermal insulation help your well-being?</li> <li>● Investigation: Students will plan an investigation to find out which materials are the best insulators and which are not. They will determine properties that make something a good insulator. They will classify materials and get ready to test them. They will collect data and classify the materials. Students will present their claim of</li> </ul>
Engineering Design	<ul style="list-style-type: none"> <li>● <b>K-2-ETS1-1:</b> 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.</li> <li>● <b>K-2-ETS1-2:</b> 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.</li> <li>● <b>K-2-ETS1-3:</b> Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</li> </ul>	
<b>FOUNDATION Disciplinary: Core Idea</b>	<b>FOUNDATION Disciplinary: Statement</b>	
PS1.A: Structure and Properties of Matter	<ul style="list-style-type: none"> <li>● 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.</li> <li>● Different properties are suited to different purposes.</li> <li>● A great variety of objects can be built up from a small set of pieces.</li> </ul>	
PS1.B: Chemical Reactions	Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not.	
ETS1.A: Defining and Delimiting Engineering Problems	<ul style="list-style-type: none"> <li>● A situation that people want to change or create can be approached as a problem to be solved through engineering.</li> <li>● Asking questions, making observations, and gathering information are helpful in thinking about problems.</li> </ul>	

	<ul style="list-style-type: none"> <li>Before beginning to design a solution, it is important to clearly understand the problem.</li> </ul>	
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.	
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.	
<b>FOUNDATION Science and Engineering Practices: Core Idea</b>	<b>FOUNDATION Science and Engineering Practices: Statement</b>	
Planning and Carrying Out Investigations	Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.	
Constructing Explanations and Designing Solutions	Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena.	
Engaging in Argument from Evidence	Construct an argument with evidence to support a claim.	
Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena	Science searches for cause and effect relationships to explain natural events.	
Asking Questions and Defining Problems	<ul style="list-style-type: none"> <li>Ask questions based on observations to find more information about the natural and/or designed world(s).</li> <li>Define a simple problem that can be solved through the development of a new or improved object or tool.</li> </ul>	
Developing and Using Models	Develop a simple model based on evidence to represent a proposed object or tool.	
Analyzing and Interpreting Data	Analyze data from tests of an object or tool to determine if it works as intended.	
<b>FOUNDATION Crosscutting Concepts: Core Idea</b>	<b>FOUNDATION Crosscutting Concepts: Statement</b>	

which material is the best thermal insulator with their evidence for their claim to the class.

- Discuss: How does working with others help you solve problems? Why does a rubber band go flying if you stretch it out first? What are some things you can do to be flexible like a rubber band and bounce back from something hard? What does it mean to be resilient? How can being resilient help you when things don't go the way you expect them to?
- Investigation: Students will investigate which types of materials will travel short distances and long distances when launched from the same catapult. Students will design cargo airplanes to hit three targets at different distances.
- Weekly Phenomenon Investigation: How can a newspaper turn into an egg carton?
- Discuss: What is one of your favorite characteristics you have? In what ways do you contribute to recycling? How can it help your community to recycle? Can you think of any product you have used that has been recycled?
- Disassembling/Reassembling: Give each student a pen with eight or fewer parts. Assist students as they disassemble the pen and draw the schematics, making sure to number each piece. Discuss with students: What does each part of the pen do? How does its structure help it function? Have students reassemble the pen and draw it. Have students disassemble the pen again and assemble it into a new object. Then, have them draw it and name their new creation. Have them share their new object with a partner or with the class.
- Graphic organizer: How Recycling Works
- Writing prompt: Write a recycling journey story about how a recycled object becomes a new object (e.g., how a plastic water bottle becomes a park bench; how a glass baby food jar becomes a glass soda bottle; or how a piece of writing paper becomes toilet paper).
- Weekly Phenomenon Investigation: Does elephant toothpaste show a reversible or irreversible change in matter?
- Discuss: What is your favorite state of matter for water and why? What kinds of changes have you gone through in the last year? How did the changes you have gone through impact you?
- Elephant Toothpaste Activity
- Writing prompt: Write about a reversible or irreversible change. Tell how the matter changed from its perspective. (E.g., Hi! I'm an ice cube. I am cold, solid, and hard. One day, I stayed outside too long and the sun melted me! I was liquid and spread out! Thankfully, I

Patterns	Patterns in the natural and human designed world can be observed.	<p>was in a cup and got placed back into the freezer. Finally, I was back to my old self. I'm thankful the change was reversible!)</p> <p><b>Interdisciplinary Connections: Content: ;NJSLS#:</b></p> <p>ELA/Literacy -</p> <ul style="list-style-type: none"> <li>RI.2.1 - Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.</li> <li>RI.2.3 - Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.</li> <li>RI.2.8 - Describe how reasons support specific points the author makes in a text.</li> <li>W.2.1 - Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section.</li> <li>W.2.7 - Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).</li> <li>W.2.8 - Recall information from experiences or gather information from provided sources to answer a question..</li> </ul> <p>Mathematics -</p> <ul style="list-style-type: none"> <li>MP.2 - Reason abstractly and quantitatively.</li> <li>MP.4 - Model with mathematics.</li> <li>MP.5 - Use appropriate tools strategically.</li> <li>2.MD.D.10 - Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.</li> </ul> <p>Technology -</p> <ul style="list-style-type: none"> <li>8.1.2.DA.3: Identify and describe patterns in data visualizations.</li> <li>8.1.2.DA.4: Make predictions based on data using charts or graphs.</li> </ul>
Cause and Effect	Simple tests can be designed to gather evidence to support or refute student ideas about causes.	
Energy and Matter	<ul style="list-style-type: none"> <li>Objects may break into smaller pieces and be put together into larger pieces, or change shapes.</li> <li>Events have causes that generate observable patterns.</li> </ul>	
Structure and Function	The shape and stability of structures of natural and designed objects are related to their function(s).	
Influence of Engineering, Technology, and Science, on Society and the Natural World	Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world.	
<b>Social and Emotional Learning: Competencies</b>	<b>Social and Emotional Learning: Sub-Competencies</b>	
<ul style="list-style-type: none"> <li>Self-Awareness</li> <li>Self-Management</li> <li>Responsible Decision Making</li> <li>Social Awareness</li> <li>Relationship Skills</li> <li>Motivation</li> </ul>	<ul style="list-style-type: none"> <li>Emotional Awareness</li> <li>Internal Regulation</li> <li>Behavior Control</li> <li>Goal Pursuance</li> <li>Appreciating Social and Environment Diversity</li> <li>Adaptive Behavior</li> <li>Communication</li> <li>Social Engagement</li> <li>Constructive Thinking</li> <li>Consequence Evaluation</li> <li>Respect for Self and Others</li> <li>Enthusiasm</li> <li>Initiative</li> <li>Resilience</li> </ul>	
<b>Assessments (Formative)</b> <i>To show evidence of meeting the standard/s, students will successfully engage within:</i>		<b>Assessments (Summative)</b> <i>To show evidence of meeting the standard/s, students will successfully complete:</i>
<b>Formative Assessments:</b> <ul style="list-style-type: none"> <li>Participation in class discussions/debates</li> </ul>		<b>Benchmarks:</b> <ul style="list-style-type: none"> <li>Writing prompts</li> </ul>

<ul style="list-style-type: none"> <li>● Exit tickets</li> <li>● Quizzes</li> <li>● In-class assignments/activities</li> <li>● Presentations</li> <li>● Group assignments</li> <li>● IXL results</li> </ul>	<ul style="list-style-type: none"> <li>● Mid-Unit Assessments</li> </ul> <p><b><u>Summative Assessments:</u></b></p> <ul style="list-style-type: none"> <li>● Unit test</li> <li>● Unit project</li> <li>● Lab activities</li> </ul>		
<b>Differentiated Student Access to Content: Teaching and Learning <i>Resources/Materials</i></b>			
<b>Core Resources</b>	<b>Alternate Core Resources <i>IEP/504/At-Risk/ESL</i></b>	<b>ELL Core Resources</b>	<b>Gifted &amp; Talented Core Resources</b>
<ul style="list-style-type: none"> <li>● Science Studies Weekly - Grade Two</li> <li>● Teacher created reading guides and presentations</li> </ul>	<ul style="list-style-type: none"> <li>● Modified/leveled readings from Science Studies Weekly - Grade Two</li> <li>● Teacher created reading guides and presentations</li> </ul>	<ul style="list-style-type: none"> <li>● Translated and modified readings from Science Studies Weekly - Grade Two</li> <li>● Translated teacher created reading guides and presentations</li> </ul>	<ul style="list-style-type: none"> <li>● Science Studies Weekly - Grade Two</li> <li>● Teacher created reading guides and presentations</li> </ul>
<b>Supplemental Resources</b>			
<ul style="list-style-type: none"> <li>● Chromebooks</li> <li>● SmartBoard</li> <li>● IXL</li> <li>● Teacher Online Resources</li> <li>● Science A-Z</li> <li>● Newsela.com</li> <li>● Kahoot</li> <li>● BrainPop</li> <li>● Applicable educational videos</li> </ul>			
<b>Differentiated Student Access to Content: Recommended <i>Strategies &amp; Techniques</i></b>			
<b>Core Resources</b>	<b>Alternate Core Resources <i>IEP/504/At-Risk/ESL</i></b>	<b>ELL Core Resources</b>	<b>Gifted &amp; Talented Core</b>
<ul style="list-style-type: none"> <li>● Encourage creative expression and thinking by allowing students to choose how to approach a problem or assignment.</li> <li>● Jigsaws</li> <li>● Think-Pair-Share</li> <li>● Boost engagement with material by providing opportunities for</li> </ul>	<ul style="list-style-type: none"> <li>● Provide graphic organizers for additional support or encourage students to create digital multimedia to showcase knowledge.</li> <li>● Use prompts and model directions</li> <li>● Provide opportunities to model talk during read alouds, and scaffold talk during whole class and small group</li> </ul>	<ul style="list-style-type: none"> <li>● Utilize visual supports and graphic organizers</li> <li>● Use prompts and model directions</li> <li>● Provide opportunities to model talk during read alouds, and scaffold talk during whole class and small group discussions</li> <li>● Device used for translation purposes</li> </ul>	<ul style="list-style-type: none"> <li>● Encourage students to explore concepts in depth and encourage independent studies or investigations.</li> <li>● Modeling or independent student-led research</li> <li>● Use of higher leveled text and/or writing assignments</li> </ul>

<p>differentiation, group work, and alternative assignments/assessments where appropriate</p> <ul style="list-style-type: none"> <li>Provide feedback utilizing a growth mindset and praise what is done correctly based upon effort, attitude and strategy.</li> </ul>	<p>discussions</p> <ul style="list-style-type: none"> <li>Extended time for revisions or opportunity to identify and develop areas of personal interest</li> </ul>	<ul style="list-style-type: none"> <li>Provide additional wait time for student responses to questions to allow students the ability to undergo the process of translation between languages, composition of response and attempted response.</li> </ul>	<ul style="list-style-type: none"> <li>Utilize differentiation in the areas of acceleration, enrichment, and grouping</li> </ul>
<p><b>NJSLS CAREER READINESS, LIFE LITERACIES &amp; KEY SKILLS</b></p>	<p><b>Disciplinary Concept:</b></p>		
	<p><b>Core Ideas:</b></p>	<p>Critical thinkers must first identify a problem then develop a plan to address it to effectively solve the problem.</p>	
	<p><b>Performance Expectation/s:</b></p>	<ul style="list-style-type: none"> <li>9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem.</li> <li>9.4.2.CT.2: Identify possible approaches and resources to execute a plan.</li> <li>9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).</li> </ul>	
	<p><b>Career Readiness, Life Literacies, &amp; Key Skills Practices</b></p>		
	<ul style="list-style-type: none"> <li>Act as a responsible and contributing community members and employee.</li> <li>Attend to financial well-being.</li> <li>Consider the environmental, social and economic impacts of decisions.</li> <li>Demonstrate creativity and innovation.</li> <li>Utilize critical thinking to make sense of problems and persevere in solving them.</li> <li>Model integrity, ethical leadership and effective management</li> <li>Plan education and career paths aligned to personal goals.</li> <li>Use technology to enhance productivity increase collaboration and communicate effectively.</li> <li>Work productively in teams while using cultural/global competence.</li> </ul>		

Marking Period	Unit Title	Recommended Instructional Days
3	General Science	9 weeks
<p>NJSLS - Science: <i>Title</i></p>	<p>NJSLS - Science: <i>Performance Expectations</i></p>	<p><b>Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-S within Unit</b></p>

Ecosystems: Interactions, Energy, and Dynamics	<ul style="list-style-type: none"> <li>● <b>2-LS2-1:</b> Plan and conduct an investigation to determine if plants need sunlight and water to grow.</li> <li>● <b>2-LS2-2:</b> Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.</li> </ul>	<p><b>Essential Question/s:</b></p> <ol style="list-style-type: none"> <li>1. What does a plant need to grow?</li> <li>2. Can any seed grow into a plant?</li> <li>3. How are seeds made?</li> <li>4. What is pollination?</li> <li>5. How do bees and flowers help each other?</li> <li>6. How do seeds get away from their parent plant?</li> <li>7. How do animals help with pollination and seed dispersal?</li> <li>8. Why is there little plant life on a rainforest floor?</li> <li>9. Where are tundras, grasslands, and deserts?</li> <li>10. How do plants survive in harsh habitats?</li> <li>11. Why don't starfish live in the open ocean?</li> <li>12. How does the Great Pacific Garbage Patch affect ocean animals?</li> </ol> <p><b>Activity Description:</b></p> <ul style="list-style-type: none"> <li>● Article analysis</li> <li>● Vocabulary activities</li> <li>● Video/photo analysis</li> <li>● Weekly Phenomenon Investigation: Can any seed grow into a plant?</li> <li>● Discuss: How can you care for a seed so that it will germinate and sprout?</li> <li>● Planting Activity - Utilize Plant Growth Prediction Chart</li> <li>● Graphic organizer: Parts of a Seed</li> <li>● Experiment: Comparing Plants with Varied Amounts of Light/Water</li> <li>● Writing prompt: Write a narrative about a seed getting what it needs to germinate and grow into a sprout.</li> <li>● Weekly Phenomenon Investigation: How are seeds made?</li> <li>● Discuss: A plant needs sunlight, warmth, and water to grow. What do you need in order to grow? The deeper and wider a plant's roots grow, the stronger the plant is. What are some things you do that make you stronger? How does the climate in an area affect the plants? How do plants in an area affect the people in the community?</li> <li>● Graphic Organizer: Flower Parts</li> <li>● Writing prompt: In your opinion, what is the most important part of a plant? Why is it important?</li> <li>● Weekly Phenomenon Investigation: How do bees and flowers help each other?</li> <li>● Discuss: Some plants can self-pollinate. What are some growth mindset phrases you can say to yourself to help you keep growing</li> </ul>
Biological Evolution: Unity and Diversity	<ul style="list-style-type: none"> <li>● <b>2-LS4-1:</b> Make observations of plants and animals to compare the diversity of life in different habitats.</li> </ul>	
Engineering Design	<ul style="list-style-type: none"> <li>● <b>K-2-ETS1-1:</b> 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.</li> <li>● <b>K-2-ETS1-2:</b> 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.</li> <li>● <b>K-2-ETS1-3:</b> Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</li> </ul>	
<b>FOUNDATION Disciplinary: Core Idea</b>	<b>FOUNDATION Disciplinary: Statement</b>	
LS2.A: Interdependent Relationships in Ecosystems	<ul style="list-style-type: none"> <li>● Plants depend on water and light to grow.</li> <li>● Plants depend on animals for pollination or to move their seeds around.</li> </ul>	
LS4.D: Biodiversity and Humans	There are many different kinds of living things in any area, and they exist in different places on land and in water.	
ETS1.A: Defining and Delimiting Engineering Problems	<ul style="list-style-type: none"> <li>● A situation that people want to change or create can be approached as a problem to be solved through engineering.</li> <li>● Asking questions, making observations, and gathering information are helpful in thinking about problems.</li> </ul>	



	<ul style="list-style-type: none"> <li>Before beginning to design a solution, it is important to clearly understand the problem.</li> </ul>	<p>and learning? Bees, birds, and bats have a job to spread pollen. What kinds of things could you say if your job was to spread kindness? What do you think could happen to food supplies if bees, birds, and bats weren't able to spread pollen anymore? What examples of symbiosis do you see within your social groups?</p> <ul style="list-style-type: none"> <li>Graphic Organizer: Stamen and Pistil</li> <li>Graphic Organizer: How Bees Pollinate</li> <li>Pollination Simulation</li> <li>Writing prompt: Write an expository "how-to" piece about how bees pollinate flowers.</li> <li>Weekly Phenomenon Investigation: How do seeds get away from their parent plant?</li> <li>Discuss: What are some similarities you have with seeds? If your words were like seeds, what kind of "plants" would they produce? Why do you think this? Are there any word choices you would change? What are your favorite kinds of seeds and plants?</li> <li>Bear, Horse, Squirrel Game</li> <li>Graphic Organizer: Natural Seed Dispersal</li> <li>Writing prompt: Choose a type of dispersal. Write a story about the journey of a seed to a new place.</li> <li>Weekly Phenomenon Investigation: How do animals help with pollination and seed dispersal?</li> <li>Discuss: Think of a time you have been an agent of seed dispersal. Get with a partner and share how you helped the seeds spread. (If you have not been an agent of seed dispersal, think about a time you have seen seed dispersal or a future time where you might see it.) What could happen if there were no seed dispersal events? How does seed dispersal affect an area's landscape? How might seed dispersal or lack of seed dispersal affect an area's ability to provide adequate food and water for a community?</li> <li>Engineering Design Challenge: Design a model of an animal that either helps with seed dispersal or pollination.</li> <li>Weekly Phenomenon Investigation: Why is there little plant life on a rainforest floor?</li> <li>Discuss: Which habitat do you think is better for a person's well-being? Defend your answer. How can a habitat or environment impact a person's well-being? What is your favorite habitat and why? Favorite season and why?</li> <li>Chart: Shelter, Water, Food - Show students various habitat images from related media. Ask students to identify any shelter, water, or food they see in the pictures and add them to the chart. Ask</li> </ul>
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.	
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.	
<b>FOUNDATION Science and Engineering Practices: Core Idea</b>	<b>FOUNDATION Science and Engineering Practices: Statement</b>	
Planning and Carrying Out Investigations	<ul style="list-style-type: none"> <li>Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.</li> <li>Make observations (firsthand or from media) to collect data which can be used to make comparisons.</li> </ul>	
Asking Questions and Defining Problems	<ul style="list-style-type: none"> <li>Ask questions based on observations to find more information about the natural and/or designed world(s).</li> <li>Define a simple problem that can be solved through the development of a new or improved object or tool.</li> </ul>	
Developing and Using Models	Develop a simple model based on evidence to represent a proposed object or tool.	
Analyzing and Interpreting Data	Analyze data from tests of an object or tool to determine if it works as intended.	
Scientific Knowledge is Based on Empirical Evidence	Scientists look for patterns and order when making observations about the world.	
<b>FOUNDATION Crosscutting Concepts: Core Idea</b>	<b>FOUNDATION Crosscutting Concepts: Statement</b>	



Cause and Effect	Events have causes that generate observable patterns.	<p>students: Is there enough space for plants and animals to grow here? Or is it too crowded?</p> <ul style="list-style-type: none"> <li>● Rainforest Graphic Organizer</li> <li>● Rainforest Light Demonstration</li> <li>● Temperate Forest Graphic Organizer</li> <li>● Forest Sorting Activity</li> <li>● Writing prompt: Which is better: rainforest or temperate forest? Write your opinion and reasons for that opinion.</li> <li>● Weekly Phenomenon Investigation: How do plants survive in harsh habitats?</li> <li>● Discuss: Examine your behavior with friends. Are there any ways that your behavior might seem like a harsh environment? What could you do to adjust your behavior? Cacti store water in their stems to help them survive. What are some things you do to help you survive?</li> <li>● Tundra, Grassland, or Desert Chart</li> <li>● Writing prompt: Research a plant or animal that lives in a tundra, grassland, or desert. Write an informative piece about your plant or animal and the special features it has to help it survive.</li> <li>● Weekly Phenomenon Investigation: Why don't starfish live in the open ocean?</li> <li>● Discuss: How does a habitat impact an organism? How do you think your habitat impacts your growth and development? What is important to you in your habitat?</li> <li>● Graphic organizer: Saltwater Habitats</li> <li>● Graphic organizer: Freshwater Habitats</li> <li>● Saltwater and Freshwater Sorting Activity</li> <li>● Writing prompt: Would you rather explore a saltwater habitat or a freshwater habitat? Why?</li> <li>● Weekly Phenomenon Investigation: How does The Great Pacific Garbage Patch affect ocean animals?</li> <li>● Discuss: What are you doing to protect your environment? How do you treat the animals in your environment? How do the animals in your environment impact the environment? How do you treat the people in your environment? What are two things you like about the environment where you live?</li> <li>● Writing prompt: Research someone or something that has had a positive change on the environment. Write about it and share it with your class.</li> </ul>
Structure and Function	The shape and stability of structures of natural and designed objects are related to their function(s).	
<b>Social and Emotional Learning:</b> <i>Competencies</i>	<b>Social and Emotional Learning:</b> <i>Sub-Competencies</i>	
<ul style="list-style-type: none"> <li>● Self-Awareness</li> <li>● Self-Management</li> <li>● Responsible Decision Making</li> <li>● Social Awareness</li> <li>● Relationship Skills</li> <li>● Motivation</li> </ul>	<ul style="list-style-type: none"> <li>● Emotional Awareness</li> <li>● Internal Regulation</li> <li>● Behavior Control</li> <li>● Goal Pursuance</li> <li>● Appreciating Social and Environment Diversity</li> <li>● Adaptive Behavior</li> <li>● Communication</li> <li>● Social Engagement</li> <li>● Constructive Thinking</li> <li>● Consequence Evaluation</li> <li>● Respect for Self and Others</li> <li>● Enthusiasm</li> <li>● Initiative</li> <li>● Resilience</li> </ul>	<p><b>Interdisciplinary Connections: Content: ;NJSLS#:</b></p>

		<p>ELA/Literacy -</p> <ul style="list-style-type: none"> <li>W.2.7 - Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).</li> <li>W.2.8 - Recall information from experiences or gather information from provided sources to answer a question.</li> <li>SL.2.5 - Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.</li> </ul> <p>Mathematics -</p> <ul style="list-style-type: none"> <li>MP.2 - Reason abstractly and quantitatively.</li> <li>MP.4 - Model with mathematics.</li> <li>MP.5 - Use appropriate tools strategically.</li> <li>2.MD.D.10 - Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (2-LS2-2)</li> </ul> <p>Technology -</p> <ul style="list-style-type: none"> <li>8.1.2.DA.3: Identify and describe patterns in data visualizations.</li> <li>8.1.2.DA.4: Make predictions based on data using charts or graphs.</li> </ul>	
<p align="center"><b>Assessments (Formative)</b> <i>To show evidence of meeting the standard/s, students will successfully engage within:</i></p>		<p align="center"><b>Assessments (Summative)</b> <i>To show evidence of meeting the standard/s, students will successfully complete:</i></p>	
<p><b><u>Formative Assessments:</u></b></p> <ul style="list-style-type: none"> <li>Participation in class discussions/debates</li> <li>Exit tickets</li> <li>Quizzes</li> <li>In-class assignments/activities</li> <li>Presentations</li> <li>Group assignments</li> <li>IXL results</li> </ul>		<p><b><u>Benchmarks:</u></b></p> <ul style="list-style-type: none"> <li>Writing prompts</li> <li>Mid-Unit Assessments</li> </ul> <p><b><u>Summative Assessments:</u></b></p> <ul style="list-style-type: none"> <li>Unit test</li> <li>Unit project</li> <li>Lab activities</li> </ul>	
<p align="center"><b>Differentiated Student Access to Content: Teaching and Learning Resources/Materials</b></p>			
<p align="center"><b>Core Resources</b></p>	<p align="center"><b>Alternate Core Resources IEP/504/At-Risk/ESL</b></p>	<p align="center"><b>ELL Core Resources</b></p>	<p align="center"><b>Gifted &amp; Talented Core Resources</b></p>

<ul style="list-style-type: none"> <li>Science Studies Weekly - Grade Two</li> <li>Teacher created reading guides and presentations</li> </ul>	<ul style="list-style-type: none"> <li>Modified/leveled readings from Science Studies Weekly - Grade Two</li> <li>Teacher created reading guides and presentations</li> </ul>	<ul style="list-style-type: none"> <li>Translated and modified readings from Science Studies Weekly - Grade Two</li> <li>Translated teacher created reading guides and presentations</li> </ul>	<ul style="list-style-type: none"> <li>Science Studies Weekly - Grade Two</li> <li>Teacher created reading guides and presentations</li> </ul>
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**Supplemental Resources**

<ul style="list-style-type: none"> <li>Chromebooks</li> <li>SmartBoard</li> <li>IXL</li> <li>Teacher Online Resources</li> <li>Science A-Z</li> <li>Newsela.com</li> <li>Kahoot</li> <li>BrainPop</li> <li>Applicable educational videos</li> </ul>
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**Differentiated Student Access to Content:  
Recommended *Strategies & Techniques***

<b>Core Resources</b>	<b>Alternate Core Resources <i>IEP/504/At-Risk/ESL</i></b>	<b>ELL Core Resources</b>	<b>Gifted &amp; Talented Core</b>
<ul style="list-style-type: none"> <li>Encourage creative expression and thinking by allowing students to choose how to approach a problem or assignment.</li> <li>Jigsaws</li> <li>Think-Pair-Share</li> <li>Boost engagement with material by providing opportunities for differentiation, group work, and alternative assignments/assessments where appropriate</li> <li>Provide feedback utilizing a growth mindset and praise what is done correctly based upon effort, attitude and strategy.</li> </ul>	<ul style="list-style-type: none"> <li>Provide graphic organizers for additional support or encourage students to create digital multimedia to showcase knowledge.</li> <li>Use prompts and model directions</li> <li>Provide opportunities to model talk during read alouds, and scaffold talk during whole class and small group discussions</li> <li>Extended time for revisions or opportunity to identify and develop areas of personal interest</li> </ul>	<ul style="list-style-type: none"> <li>Utilize visual supports and graphic organizers</li> <li>Use prompts and model directions</li> <li>Provide opportunities to model talk during read alouds, and scaffold talk during whole class and small group discussions</li> <li>Device used for translation purposes</li> <li>Provide additional wait time for student responses to questions to allow students the ability to undergo the process of translation between languages, composition of response and attempted response.</li> </ul>	<ul style="list-style-type: none"> <li>Encourage students to explore concepts in depth and encourage independent studies or investigations.</li> <li>Modeling or independent student-led research</li> <li>Use of higher leveled text and/or writing assignments</li> <li>Utilize differentiation in the areas of acceleration, enrichment, and grouping</li> </ul>

	<b>Disciplinary Concept:</b>	
	<b>Core Ideas:</b>	Critical thinkers must first identify a problem then develop a plan to address it to effectively solve the problem.

<b>NJSLS CAREER READINESS, LIFE LITERACIES &amp; KEY SKILLS</b>	<b>Performance Expectation/s:</b>	<ul style="list-style-type: none"> <li>● 9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem.</li> <li>● 9.4.2.CT.2: Identify possible approaches and resources to execute a plan.</li> <li>● 9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).</li> </ul>
	<b>Career Readiness, Life Literacies, &amp; Key Skills Practices</b>	
	<ul style="list-style-type: none"> <li>● Act as a responsible and contributing community members and employee.</li> <li>● Attend to financial well-being.</li> <li>● Consider the environmental, social and economic impacts of decisions.</li> <li>● Demonstrate creativity and innovation.</li> <li>● Utilize critical thinking to make sense of problems and persevere in solving them.</li> <li>● Model integrity, ethical leadership and effective management</li> <li>● Plan education and career paths aligned to personal goals.</li> <li>● Use technology to enhance productivity increase collaboration and communicate effectively.</li> <li>● Work productively in teams while using cultural/global competence.</li> </ul>	

Marking Period	Unit Title	Recommended Instructional Days
4	Earth's Systems: Process that Shape the Earth	10 weeks
NJSLS - Science: <i>Title</i>	NJSLS - Science: <i>Performance Expectations</i>	Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-S within Unit
Earth's Place in the Universe	<ul style="list-style-type: none"> <li>● <b>2-ESS1-1:</b> Use information from several sources to provide evidence that Earth events can occur quickly or slowly.</li> </ul>	<b><u>Essential Question/s:</u></b> <ol style="list-style-type: none"> <li>1. How does lava change the earth's surface?</li> <li>2. What is Weathering?</li> <li>3. What is Erosion?</li> <li>4. How are rock arches formed?</li> <li>5. How can you protect your property from natural disasters?</li> <li>6. How can you protect a house from high winds?</li> <li>7. What are landforms?</li> <li>8. How was the Grand Canyon formed?</li> <li>9. Why can't humans survive on salt water?</li> <li>10. Why do water droplets form on the outside of a cold glass?</li> </ol>
Earth's Systems	<ul style="list-style-type: none"> <li>● <b>2-ESS2-1:</b> Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.</li> <li>● <b>2-ESS2-2:</b> Develop a model to represent the shapes and kinds of land and bodies of water in an area.</li> </ul>	

	<ul style="list-style-type: none"> <li>● <b>2-ESS2-3:</b> Obtain information to identify where water is found on Earth and that it can be solid or liquid.</li> </ul>	<p>11. How was the region where you live formed?</p> <p>12. What is weather?</p> <p>13. Why is there no snow in summer?</p>
Engineering Design	<ul style="list-style-type: none"> <li>● <b>K-2-ETS1-1:</b> 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.</li> <li>● <b>K-2-ETS1-2:</b> 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.</li> <li>● <b>K-2-ETS1-3:</b> Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</li> </ul>	<p><b>Activity Description:</b></p> <ul style="list-style-type: none"> <li>● Article analysis</li> <li>● Vocabulary activities</li> <li>● Video/photo analysis</li> <li>● Weekly Phenomenon Investigation: How does lava change the earth’s surface?</li> <li>● Discuss: Thinking about natural disasters can cause some people to feel anxious if they are not prepared. What can you do to prepare for natural disasters so you don't feel anxious?</li> <li>● Graphic Organizer: Natural Disaster Demonstrations</li> <li>● Volcano Eruption Demonstration</li> <li>● Seismic Wave Box Earthquake Demonstration</li> <li>● Hurricane Demonstration</li> <li>● Tsunami/Flood/Landslide Demonstration</li> <li>● Writing prompt: Write a letter to your family about a natural disaster that occurs often in your area and how you can prepare for an emergency together.</li> <li>● Weekly Phenomenon Investigation: How are rock arches formed?</li> <li>● Acting out weathering and erosion: Have one student pretend to be a “rock” while another pretends to be “weathering” or “erosion.” When demonstrating weathering, the “rock” doesn’t move and the weathering person moves around them. When demonstrating erosion, the person doing the erosion moves around the “rock” and pretends to take pieces off and carry them to another place while the “rock” gets smaller or lower to the ground.</li> <li>● Abrasion Experiment</li> <li>● Erosion Experiments</li> <li>● Give each student a rock formation picture and have them respond to the following: What do you notice about the rock formation? What is interesting? How do you think it got that way?</li> <li>● Weekly Phenomenon Investigation: Why do farmers plant trees around their crops?</li> <li>● Discuss: How can you prepare for natural disasters ahead of time? What can you do if you are worried about natural disasters? What plans do you, your family, or your school have in place to respond to natural disasters?</li> <li>● Create a Pros and Cons list about different flooding solutions.</li> </ul>
<b>FOUNDATION Disciplinary: Core Idea</b>	<b>FOUNDATION Disciplinary: Statement</b>	
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.	
ESS2.A: Earth Materials and Systems	Wind and water can change the shape of the land.	
ETS1.A: Defining and Delimiting Engineering Problems	<ul style="list-style-type: none"> <li>● A situation that people want to change or create can be approached as a problem to be solved through engineering.</li> <li>● Asking questions, making observations, and gathering information are helpful in thinking about problems.</li> <li>● Before beginning to design a solution, it is important to clearly understand the problem.</li> </ul>	
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.	

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.	<ul style="list-style-type: none"> <li>● Writing prompt: In your opinion, what is the most effective solution against flooding or high winds? Back up your claim with evidence.</li> <li>● Weekly Phenomenon Investigation: How can you protect your property from flooding?</li> <li>● Discuss: How does preparing for a natural disaster help you? What kinds of things can you do to prepare for a natural disaster in your area? How does thinking like an engineer help you solve problems?</li> <li>● Writing prompt: Write a real or make-believe narrative about experiencing a natural disaster.</li> <li>● Weekly Phenomenon Investigation: How can you protect a house from high winds?</li> <li>● Discuss: How does preparing for a natural disaster help you? What kinds of things can you do to prepare for a natural disaster in your area? How does thinking like an engineer help you solve problems?</li> <li>● Engineering Design Activity: Create a house that can withstand high winds.</li> <li>● Weekly Phenomenon Investigation: How was the Grand Canyon formed?</li> <li>● Discuss: How do landforms impact the natural resources or access to natural resources in an area? How does the landscape of an area impact the ability of the people in that area to meet their basic needs? How can changes in landscape or landforms impact a community?</li> <li>● Create a Landforms Flipbook</li> <li>● Community Landform Map - Create a new community. Make sure your community has at least three landforms. Design a map for your community, showing all of your landforms.</li> <li>● Writing prompt: Write a narrative from the point of view of a landform. Tell how you were created and your special characteristics.</li> <li>● Weekly Phenomenon Investigation: Why can't humans survive on salt water?</li> <li>● Discuss: What can happen if a group of people does not have access to fresh water? How does water (access to, fresh water vs. salt water, etc.) impact communities? How can a reservoir impact a community? Water can affect the physical features of the land around it. What are some ways you affect the people around you?</li> <li>● Salt Water Lab: Give each student/small group a plastic container with a strainer that fits on top. Put three to five tablespoons of rock salt in the strainer. Have students pour one to two cups of water over the rock salt and watch it drain into the container. Students will allow the water to evaporate, observing that the salt remains in the</li> </ul>
<b>FOUNDATION Science and Engineering Practices: Core Idea</b>	<b>FOUNDATION Science and Engineering Practices: Statement</b>	
Constructing Explanations and Designing Solutions	<ul style="list-style-type: none"> <li>● Make observations from several sources to construct an evidence-based account for natural phenomena.</li> <li>● Compare multiple solutions to a problem.</li> </ul>	
Asking Questions and Defining Problems	<ul style="list-style-type: none"> <li>● Ask questions based on observations to find more information about the natural and/or designed world(s).</li> <li>● Define a simple problem that can be solved through the development of a new or improved object or tool.</li> </ul>	
Developing and Using Models	<ul style="list-style-type: none"> <li>● Develop a simple model based on evidence to represent a proposed object or tool.</li> </ul>	
Analyzing and Interpreting Data	<ul style="list-style-type: none"> <li>● Analyze data from tests of an object or tool to determine if it works as intended.</li> </ul>	
<b>FOUNDATION Crosscutting Concepts: Core Idea</b>	<b>FOUNDATION Crosscutting Concepts: Statement</b>	
Stability and Change	Things may change slowly or rapidly.	
Structure and Function	The shape and stability of structures of natural and designed objects are related to their function(s).	
Influence of Engineering, Technology, and Science on Society and the Natural World	Developing and using technology has impacts on the natural world.	
Science Addresses Questions About the Natural and Material World	Scientists study the natural and material world.	

<b>Social and Emotional Learning:</b> <i>Competencies</i>	<b>Social and Emotional Learning:</b> <i>Sub-Competencies</i>	
<ul style="list-style-type: none"> <li>● Self-Awareness</li> <li>● Self-Management</li> <li>● Responsible Decision Making</li> <li>● Social Awareness</li> <li>● Relationship Skills</li> <li>● Motivation</li> </ul>	<ul style="list-style-type: none"> <li>● Emotional Awareness</li> <li>● Internal Regulation</li> <li>● Behavior Control</li> <li>● Goal Pursuance</li> <li>● Appreciating Social and Environment Diversity</li> <li>● Adaptive Behavior</li> <li>● Communication</li> <li>● Social Engagement</li> <li>● Constructive Thinking</li> <li>● Consequence Evaluation</li> <li>● Respect for Self and Others</li> <li>● Enthusiasm</li> <li>● Initiative</li> <li>● Resilience</li> </ul>	<p>container. (Briefly explain to students that the water evaporated and went into the air. They will learn more about this next week.) Repeat over a three- to four-day period. Students will observe that the salt increases each time new water is added.</p> <ul style="list-style-type: none"> <li>● Demonstration/Activity: Create a Water Filter</li> <li>● Writing prompt: Fresh water is the most important natural resource for survival. How can you make sure you conserve (don't use a lot at one time) water?</li> <li>● Weekly Phenomenon Investigation: Why do water droplets form on the outside of a cold glass?</li> <li>● Discuss: How important is it for people to have access to water? What can happen if a community doesn't have access to clean water?</li> <li>● Think-Pair-Share: Use what you know about properties of matter for water and brainstorm one way that communities without access to clean water could solve the problem.</li> <li>● Graphic Organizer: The Water Cycle</li> <li>● Evaporation demonstration: Put a cup of water on a windowsill or somewhere else inside that sees the sun but that will not be affected by any precipitation. Draw a line where the water is to start. Then, draw another line right before the lesson. Put two of the same-sized containers of water in the same area as the previous cup. Take the lid off one container. Mark the water levels to start and then mark it again right before the lesson. Show students the cup of water you had in the sunlight. Explain what you did with the cup and how long it was in the sunlight. Ask students: Why did the water level change and go down?</li> <li>● Condensation Demonstration: Place a bottle of water in a freezer for a few minutes. Put the cold bottle of water on the demonstration table. Use a heat source to heat the air around the bottle. Discuss as a class or have students write in their interactive notebooks the following questions: What happened to the bottle of water? What was the cause and effect? Why do you think that happened?</li> <li>● Writing prompt: List and explain the steps of the water cycle.</li> <li>● Weekly Phenomenon Investigation: How was the region where you live formed?</li> <li>● Discuss: How does the access to water and the landforms in your community impact the ability of people to access resources like food and water? What can you do to protect the landforms and bodies of water in your community?</li> <li>● Activity - Design A Map: Discover more about the place where you live. Learn about the landforms. Learn about the bodies of water in</li> </ul>

your area. Design a map with materials of your choice. How can you accurately show the landforms and bodies of water where you live? The landforms and bodies of water in your area might pose problems. They may be at risk of certain natural disasters. Which areas on your map might pose risks to your community? On your map, show what could be engineered to protect your community.

- Writing prompt: Choose a landform or body of water from your community. Write about its history.
- Weekly Phenomenon Investigation: Why is there no snow in summer?
- Discuss: How do wind and precipitation impact the people in an area? How can weather impact the ability of people to meet their basic needs, like food and water? What benefits does precipitation bring for a person's well-being? What is your favorite type of weather and why? What memories do you have connected to this type of weather?
- Use a thermometer and barometer to test temperature and air pressure inside and outside the school.
- Make a usable weather vane and rain gauge
- Graphic organizer: I Adapt to My Environment
- Weather Tracking Chart
- Writing prompt: Write a narrative about a time when you experienced weather (e.g., snowstorm, rainy day, hail storm, etc.).

**Interdisciplinary Connections: Content: ;NJSLS#:**

ELA/Literacy -

- RI.2.1 - Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.
- RI.2.3 - Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.
- RI.2.9 - Compare and contrast the most important points presented by two texts on the same topic.
- W.2.6 - With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.
- W.2.7 - Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).
- W.2.8 - Recall information from experiences or gather information from provided sources to answer a question.



		<ul style="list-style-type: none"> <li>● SL.2.2 - Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.</li> </ul> <p>Mathematics -</p> <ul style="list-style-type: none"> <li>● MP.2 - Reason abstractly and quantitatively.</li> <li>● MP.4 - Model with mathematics.</li> <li>● MP.5 - Use appropriate tools strategically.</li> <li>● 2.NBT.A - Understand place value.</li> <li>● 2.MD.B.5 - Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.</li> </ul> <p>Technology -</p> <ul style="list-style-type: none"> <li>● 8.1.2.DA.3: Identify and describe patterns in data visualizations.</li> <li>● 8.1.2.DA.4: Make predictions based on data using charts or graphs.</li> </ul>	
<p align="center"><b>Assessments (Formative)</b> <i>To show evidence of meeting the standard/s, students will successfully engage within:</i></p>		<p align="center"><b>Assessments (Summative)</b> <i>To show evidence of meeting the standard/s, students will successfully complete:</i></p>	
<p><b><u>Formative Assessments:</u></b></p> <ul style="list-style-type: none"> <li>● Participation in class discussions/debates</li> <li>● Exit tickets</li> <li>● Quizzes</li> <li>● In-class assignments/activities</li> <li>● Presentations</li> <li>● Group assignments</li> <li>● IXL results</li> </ul>		<p><b><u>Benchmarks:</u></b></p> <ul style="list-style-type: none"> <li>● Writing prompts</li> <li>● Mid-Unit Assessments</li> </ul> <p><b><u>Summative Assessments:</u></b></p> <ul style="list-style-type: none"> <li>● Unit test</li> <li>● Unit project</li> <li>● Lab activities</li> </ul>	
<p align="center"><b>Differentiated Student Access to Content: Teaching and Learning Resources/Materials</b></p>			
<p align="center"><b>Core Resources</b></p>	<p align="center"><b>Alternate Core Resources IEP/504/At-Risk/ESL</b></p>	<p align="center"><b>ELL Core Resources</b></p>	<p align="center"><b>Gifted &amp; Talented Core Resources</b></p>
<ul style="list-style-type: none"> <li>● Science Studies Weekly - Grade Two</li> <li>● Teacher created reading guides and presentations</li> </ul>	<ul style="list-style-type: none"> <li>● Modified/leveled readings from Science Studies Weekly - Grade Two</li> <li>● Teacher created reading guides and presentations</li> </ul>	<ul style="list-style-type: none"> <li>● Translated and modified readings from Science Studies Weekly - Grade Two</li> <li>● Translated teacher created reading guides and presentations</li> </ul>	<ul style="list-style-type: none"> <li>● Science Studies Weekly - Grade Two</li> <li>● Teacher created reading guides and presentations</li> </ul>
<p align="center"><b>Supplemental Resources</b></p>			

- Chromebooks
- SmartBoard
- IXL
- Teacher Online Resources
- Science A-Z
- Newsela.com
- Kahoot
- BrainPop
- Applicable educational videos

**Differentiated Student Access to Content:  
Recommended *Strategies & Techniques***

Core Resources	Alternate Core Resources <i>IEP/504/At-Risk/ESL</i>	ELL Core Resources	Gifted & Talented Core
<ul style="list-style-type: none"> <li>● Encourage creative expression and thinking by allowing students to choose how to approach a problem or assignment.</li> <li>● Jigsaws</li> <li>● Think-Pair-Share</li> <li>● Boost engagement with material by providing opportunities for differentiation, group work, and alternative assignments/assessments where appropriate</li> <li>● Provide feedback utilizing a growth mindset and praise what is done correctly based upon effort, attitude and strategy.</li> </ul>	<ul style="list-style-type: none"> <li>● Provide graphic organizers for additional support or encourage students to create digital multimedia to showcase knowledge.</li> <li>● Use prompts and model directions</li> <li>● Provide opportunities to model talk during read alouds, and scaffold talk during whole class and small group discussions</li> <li>● Extended time for revisions or opportunity to identify and develop areas of personal interest</li> </ul>	<ul style="list-style-type: none"> <li>● Utilize visual supports and graphic organizers</li> <li>● Use prompts and model directions</li> <li>● Provide opportunities to model talk during read alouds, and scaffold talk during whole class and small group discussions</li> <li>● Device used for translation purposes</li> <li>● Provide additional wait time for student responses to questions to allow students the ability to undergo the process of translation between languages, composition of response and attempted response.</li> </ul>	<ul style="list-style-type: none"> <li>● Encourage students to explore concepts in depth and encourage independent studies or investigations.</li> <li>● Modeling or independent student-led research</li> <li>● Use of higher leveled text and/or writing assignments</li> <li>● Utilize differentiation in the areas of acceleration, enrichment, and grouping</li> </ul>

<b>NJSLS CAREER READINESS, LIFE LITERACIES &amp; KEY SKILLS</b>	<b>Disciplinary Concept:</b>	
	<b>Core Ideas:</b>	Critical thinkers must first identify a problem then develop a plan to address it to effectively solve the problem.
	<b>Performance Expectation/s:</b>	<ul style="list-style-type: none"> <li>● 9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem.</li> <li>● 9.4.2.CT.2: Identify possible approaches and resources to execute a plan.</li> <li>● 9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).</li> </ul>
	<b>Career Readiness, Life Literacies, &amp; Key Skills Practices</b>	

	<ul style="list-style-type: none"> <li>● Act as a responsible and contributing community members and employee.</li> <li>● Attend to financial well-being.</li> <li>● Consider the environmental, social and economic impacts of decisions.</li> <li>● Demonstrate creativity and innovation.</li> <li>● Utilize critical thinking to make sense of problems and persevere in solving them.</li> <li>● Model integrity, ethical leadership and effective management</li> <li>● Plan education and career paths aligned to personal goals.</li> <li>● Use technology to enhance productivity increase collaboration and communicate effectively.</li> <li>● Work productively in teams while using cultural/global competence.</li> </ul>
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New Jersey Legislative Statutes and Administrative Code (place an "X" before each law/statute if/when present within the curriculum map)									
	Amistad Law: <i>N.J.S.A. 18A 52:16A-88</i>		Holocaust Law: <i>N.J.S.A. 18A:35-28</i>		LGBT and Disabilities Law: <i>N.J.S.A. 18A:35-4.35</i>	x	Diversity & Inclusion: <i>N.J.S.A. 18A:35-4.36a</i>	x	Standards in Action: <i>Climate Change</i>