

East Newark Public School

Science Curriculum

Grade 1



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 first 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 1 Scope and Sequence:

Unit	Estimated Pacing
Introduction to Science and Engineering	5 weeks
Waves: Light and Sound	9 weeks
Structure, Function, and Information Processing	13 weeks
Space Systems: Patterns and Cycles	8 weeks

Marking Period	Unit Title	Recommended Instructional Days
1	Introduction to Science and Engineering	5 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"> ● K-2-ETS1-1: 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. 	<p>Essential Question/s:</p> <ol style="list-style-type: none"> 1. What is a Scientist? 2. What is an Engineer? 3. What is Engineering? 4. Do colors of light and paint mix the same? 5. What happens to light in a trichroic prism? 6. What is a Pattern? 7. Can you make a walking rainbow? 8. What colors are in a rainbow? 9. What are stars made of? <p>Activity Description:</p> <ul style="list-style-type: none"> ● Article analysis ● Vocabulary activities ● Video/photo analysis ● Weekly Phenomenon Investigation: Do colors of light and paint mix the same? ● Discuss: Why do you think it is important to study the world around you? What would someone learn about you if they studied your room? In what ways have you acted like an engineer and solved a problem this week? ● Draw something you like to do everyday that involves science or engineering. ● Rainbow experiment: Divide the students into small groups and provide each group with a large baking sheet with six cups of baking soda (each mixed with a different color of food coloring and a little water). Line up the cups in the order of the rainbow. Provide each student with a cup of vinegar and a pipette or eye dropper. Tell the students that on your signal, you want them to use the pipette to drop vinegar into the colored cups and watch what happens. The
FOUNDATION Disciplinary: <i>Core Idea</i>	FOUNDATION Disciplinary: <i>Statement</i>	
ETS1.A: Defining and Delimiting Engineering Problems	<ul style="list-style-type: none"> ● A situation that people want to change or create can be approached as a problem to be solved through engineering. ● Asking questions, making observations, and gathering information are helpful in thinking about problems. ● Before beginning to design a solution, it is important to clearly understand the problem 	
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.	<p>students may determine the amount of vinegar that should be dropped into the baking soda. Tell the students that you want them to think about what they observe as they drop the vinegar into the baking soda. What can they learn about the world as they are doing science today?</p> <ul style="list-style-type: none"> ● Magnification Bingo ● Writing: What types of science or engineering did you use to get to school today? ● Weekly Phenomenon Investigation: What happens to light in a trichroic prism? ● Discuss: What is your contribution to the school? What strengths do you bring to the classroom? What helps you bounce back from setbacks or mistakes? ● Graphic organizer: Scientists Are Safe ● Sound Bingo ● Cup Challenge: Tell the students that they are going to be building a tower of cups. Their challenge is to build a tower that is as tall as they are. ● Writing: Write about how you can be a scientist or an engineer. ● Weekly Phenomenon Investigation: Can you make a walking rainbow? ● Discuss: Describe a time you have worked with others and it went well. What are the benefits to collaborating? How does working with others to solve a problem affect your well-being? How do you feel when you help others to do something? ● Draw or write about a time when you needed the help of others in order to accomplish a goal. ● Walking Rainbow Activity: Divide the students into groups of three or four. Provide every individual in the group a cup, water, a paper towel, and a spoon. Instruct the students to pour water into their cup. Put a different color of food coloring into each cup of water in the group and tell the students to stir. Instruct each student to fold their paper towel in half lengthwise and then fold it in half lengthwise again. Tell the students to work as a team in order to find a place in the classroom where they can leave their experiment overnight. They should place their cups in a circle in their area. Students should then bend their folded paper towels in half and place one end in their own cup and the other end in the next cup in the circle, making sure that the paper towel touches the water. Each cup in the circle should be connected by a paper towel. Tell the students to observe their experiment and watch what happens. ● Graphic Organizer: Good Listening
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.	
FOUNDATION Science and Engineering Practices: Core Idea	FOUNDATION Science and Engineering Practices: Statement	
Asking Questions and Defining Problems	<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. 	
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.	
FOUNDATION Crosscutting Concepts: Core Idea	FOUNDATION Crosscutting Concepts: Statement	
Structure and Function	The shape and stability of structures of natural and designed objects are related to their function(s).	
Social and Emotional Learning: Competencies	Social and Emotional Learning: Sub-Competencies	
<ul style="list-style-type: none"> ● Self-Awareness ● Self-Management ● Responsible Decision Making ● Social Awareness ● Relationship Skills ● Motivation 	<ul style="list-style-type: none"> ● Emotional Awareness ● Internal Regulation ● Behavior Control ● Goal Pursuance ● Appreciating Social and Environment Diversity ● Adaptive Behavior ● Communication ● Social Engagement ● Constructive Thinking ● Consequence Evaluation 	

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

- Respect Game
- Cooperative Art Game
- Weekly Phenomenon Investigation: What colors are in a rainbow?
- Discuss: What is a pattern you have in your daily routine? What is your favorite color of the rainbow? Create a pattern using your three favorite colors.
- Pattern Task Card Activity
- Activity: Make a Pattern With Symmetry
- Analyze patterns and make predictions
- Finish the Pattern Activity
- Draw a picture of the things you do every week. Do you notice any patterns? Write about the pattern of your week.
- Weekly Phenomenon Investigation: What stars are made of?
- Discuss: How could the engineering process help you with your friends? What is your favorite thing about a rainbow? Why is it important to make a plan? How does having a plan help you? What can happen if you don't have a plan?
- Create a Spectroscope
- Write about a time when you saw a rainbow. How did it make you feel? What did it look like?

Interdisciplinary Connections: Content: ;NJSL#:

ELA/Literacy -

- RI.1.1: Ask and answer questions about key details in a text.
- RI.1.2: Identify the main topic and retell key details of a text.
- RI.1.10: With prompting and support, read informational texts appropriately complex for grade.
- W.1.8: With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
- 1.L.4a: Use sentence-level context as a clue to the meaning of a word or phrase.
- 1.W.2: Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure.
- 1.SL.2: Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
- SL.1.1: Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.

		Mathematics - <ul style="list-style-type: none"> ● MP.2 - Reason abstractly and quantitatively. ● MP.4 - Model with mathematics. ● MP.5 - Use appropriate tools strategically. Technology - <ul style="list-style-type: none"> ● 8.1.2.DA.3: Identify and describe patterns in data visualizations. ● 8.1.2.DA.4: Make predictions based on data using charts or graphs. 	
Assessments (Formative) <i>To show evidence of meeting the standard/s, students will successfully engage within:</i>		Assessments (Summative) <i>To show evidence of meeting the standard/s, students will successfully complete:</i>	
Formative Assessments: <ul style="list-style-type: none"> ● Participation in class discussions/debates ● Exit tickets ● Quizzes ● In-class assignments/activities ● Presentations ● Group assignments ● IXL results 		Benchmarks: <ul style="list-style-type: none"> ● Writing prompts ● Mid-Unit Assessments Summative Assessments: <ul style="list-style-type: none"> ● Unit test ● Unit project ● Lab activities 	
Differentiated Student Access to Content: Teaching and Learning Resources/Materials			
Core Resources	Alternate Core Resources <i>IEP/504/At-Risk/ESL</i>	ELL Core Resources	Gifted & Talented Core Resources
<ul style="list-style-type: none"> ● Science Studies Weekly - Grade One ● Teacher created reading guides and presentations 	<ul style="list-style-type: none"> ● Modified/leveled readings from Science Studies Weekly - Grade One ● Teacher created reading guides and presentations 	<ul style="list-style-type: none"> ● Translated and modified readings from Science Studies Weekly - Grade One ● Translated teacher created reading guides and presentations 	<ul style="list-style-type: none"> ● Science Studies Weekly - Grade One ● Teacher created reading guides and presentations
Supplemental Resources			
<ul style="list-style-type: none"> ● Chromebooks ● SmartBoard ● IXL ● Teacher Online Resources ● Science A-Z ● 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"> Encourage creative expression and thinking by allowing students to choose how to approach a problem or assignment. Jigsaws Think-Pair-Share Boost engagement with material by providing opportunities for differentiation, group work, and alternative assignments/assessments where appropriate Provide feedback utilizing a growth mindset and praise what is done correctly based upon effort, attitude and strategy. 	<ul style="list-style-type: none"> Provide graphic organizers for additional support or encourage students to create digital multimedia to showcase knowledge. Use prompts and model directions Provide opportunities to model talk during read alouds, and scaffold talk during whole class and small group discussions Extended time for revisions or opportunity to identify and develop areas of personal interest 	<ul style="list-style-type: none"> Utilize visual supports and graphic organizers Use prompts and model directions Provide opportunities to model talk during read alouds, and scaffold talk during whole class and small group discussions Device used for translation purposes 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. 	<ul style="list-style-type: none"> Encourage students to explore concepts in depth and encourage independent studies or investigations. Modeling or independent student-led research Use of higher leveled text and/or writing assignments Utilize differentiation in the areas of acceleration, enrichment, and grouping

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

Marking Period	Unit Title	Recommended Instructional Days
1-2	Waves: Light and Sound	9 weeks
NJSLs - Science: Title	NJSLs - Science: Performance Expectations	Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLs-S within Unit
From Molecules to Organisms: Structures and Processes	<ul style="list-style-type: none"> ● 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>Essential Question/s:</p> <ol style="list-style-type: none"> 1. What is cause and effect? 2. Why does the lantern float? 3. What is sound? 4. How do voices make sound? 5. What are sound vibrations? 6. What do instruments sound like? 7. What is light? 8. What can you see with a flashlight? 9. Why do fireflies make light? 10. What happens when you look in a spoon? 11. What does this mean? 12. What is Morse Code? <p>Activity Description:</p> <ul style="list-style-type: none"> ● Article analysis ● Vocabulary activities ● Video/photo analysis ● Weekly Phenomenon Investigation: Why does the lantern float? ● Discuss: How do your words affect other people? Do you have any behaviors you want to change? What are some things you can do that cause others to feel happy? How can you treat others respectfully? What can you do if someone does something unkind? ● Cause and Effect Game ● Hand Shadows Activity ● Writing prompt: What if you found milk spilled on a kitchen floor? Write about what might have caused the spill.
Waves and Their Applications in Technologies for Information Transfer	<ul style="list-style-type: none"> ● 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 sounds to solve the problem of communicating over a distance. 	
Engineering Design	<ul style="list-style-type: none"> ● K-2-ETS1-1: 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 	

	<p>function as needed to solve a given problem.</p> <ul style="list-style-type: none"> ● 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. 	
FOUNDATION Disciplinary: Core Idea	FOUNDATION Disciplinary: Statement	
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.	
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.	
PS4.A: Wave Properties	Sound can make matter vibrate, and vibrating matter can make sound.	
PS4.B: Electromagnetic Radiation	<ul style="list-style-type: none"> ● Objects can be seen if light is available to illuminate them or if they give off their own light. ● 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.) 	<ul style="list-style-type: none"> ● Weekly Phenomenon Investigation: How do voices make sound? ● Discuss: Describe a time when singing helped you feel better. What kinds of sounds make you happy? What sounds would you share with a friend who might be feeling sad? ● Students will experiment with making different types of sounds by vibrating different types of objects. ● The Effect of Sound Experiment ● Writing prompt: Write about a time when you have heard a sound you enjoyed. Describe where you were and what the sound was like. ● Weekly Phenomenon Investigation: What do instruments sound like? ● Discuss: What is your favorite instrument? What kinds of sounds help you feel calm? What kinds of sounds help you feel energized? ● Sound Investigation: Divide the students into small groups of three or four. Give each group a box of objects. Challenge each group to make sounds with the items in the boxes. Tell the students to think of words they might use to describe the sounds. ● Graphic organizer: Features of Sound ● Weekly Phenomenon Investigation: What can you see with a flashlight? ● Discuss: How do you feel when you have light? How do you feel when you don't have light? What are your favorite sources of light? How do you feel when you go outside in the sunshine? How do you want people to feel when they are around you? What can you do to help them feel good? ● Graphic Organizer: Light Energy ● Light Mixing Activity ● Writing prompt: Write about a bright, sunny day. Describe what you saw. Describe what you did. Describe how you felt. ● Weekly Phenomenon Investigation: Why do fireflies make light? ● Discuss: What are your favorite sources of light? What is a fun way to use light sources? How can you conserve light energy? How do you feel when you go outside in the sunshine? What do you think about fireflies? ● Sources of Light Chart ● Light Sources Game ● Using Light to See Activity ● Natural / Human-Made Light Sources Sort ● Write about some of the light sources in your home. ● Weekly Phenomenon Investigation: What happens when you look in a spoon?

PS4.C: Information Technologies and Instrumentation	People also use a variety of devices to communicate (send and receive information) over long distances.	<ul style="list-style-type: none"> ● Discuss: What are some of your favorite translucent objects? When light reflects off of something, what does it make you think about? How do you feel in the light? How do you feel in the dark? What are some things that light helps you do? ● Activity: Explore how light moves through water. ● Graphic organizer: Light On Different Surfaces ● Match the Shadows Activity ● Look at your reflection in a spoon. Write about what you see. Draw a picture. ● Weekly Phenomenon Investigation: How does a lighthouse send a message? ● Discuss: How is a lighthouse a warning? What are other warning signs you know about? Why is it important to pay attention to warnings? How can you tell someone if you need help with something? Who is someone you can trust to help you if you need it? ● Activity: Communicate with Sound ● Activity: Communicate with Light ● Activity: Make a Secret Code - Write a code that uses sound or light to communicate a message. ● Weekly Phenomenon Investigation: What is Morse Code? ● Discuss: What are some of your favorite ways to send messages? What are some of your favorite ways to receive messages? Why do you think it is important to listen to messages sent to you? What can you do if someone sends you an unkind message? What can you do if you see someone sending an unkind message to someone else? ● Students will engineer a device that can use sound or light to send a Morse code message. ● Write a letter to someone who lives far away. Send them your message. <p>Interdisciplinary Connections: Content: ;NJSL#:</p> <p>ELA/Literacy -</p> <ul style="list-style-type: none"> ● RI.1.1: Ask and answer questions about key details in a text. ● RI.1.2: Identify the main topic and retell key details of a text. ● RL.1.7: Use illustrations and details in a story to describe its characters, setting, or events. ● RI.1.10: With prompting and support, read informational texts appropriately complex for grade.
ETS1.A: Defining and Delimiting Engineering Problems	<ul style="list-style-type: none"> ● A situation that people want to change or create can be approached as a problem to be solved through engineering. ● Asking questions, making observations, and gathering information are helpful in thinking about problems. ● Before beginning to design a solution, it is important to clearly understand the problem. 	
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.	
FOUNDATION Science and Engineering Practices: Core Idea	FOUNDATION Science and Engineering Practices: Statement	
Planning and Carrying Out Investigations	Plan and conduct investigations collaboratively to produce evidence to answer a question.	
Constructing Explanations and Designing Solutions	<ul style="list-style-type: none"> ● Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. ● Use tools and materials provided to design a device that solves a specific problem. 	
Scientific Investigations Use a Variety of Methods	<ul style="list-style-type: none"> ● Science investigations begin with a question. ● Scientists use different ways to study the world. 	

Asking Questions and Defining Problems	<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. 	<ul style="list-style-type: none"> W.1.2 - Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure. W.1.7 - Participate in shared research and writing projects (e.g., explore a number of “how-to” books on a given topic and use them to write a sequence of instructions). W.1.8 - With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question. SL.1.1 - Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.
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.	
FOUNDATION Crosscutting Concepts: <i>Core Idea</i>	FOUNDATION Crosscutting Concepts: <i>Statement</i>	
Cause and Effect	Simple tests can be designed to gather evidence to support or refute student ideas about causes.	
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.	
Structure and Function	The shape and stability of structures of natural and designed objects are related to their function(s).	
Social and Emotional Learning: <i>Competencies</i>	Social and Emotional Learning: <i>Sub-Competencies</i>	<p>Mathematics -</p> <ul style="list-style-type: none"> MP.5 - Use appropriate tools strategically 1.MD.A.1 - Order three objects by length; compare the lengths of two objects indirectly by using a third object. 1.MD.A.2 - Express the length of an object as a whole number of length units, by layering multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps. <p>Technology -</p> <ul style="list-style-type: none"> 8.1.2.DA.3: Identify and describe patterns in data visualizations. 8.1.2.DA.4: Make predictions based on data using charts or graphs.
<ul style="list-style-type: none"> Self-Awareness Self-Management Responsible Decision Making Social Awareness Relationship Skills Motivation 	<ul style="list-style-type: none"> Emotional Awareness Internal Regulation Behavior Control Goal Pursuance Appreciating Social and Environment Diversity Adaptive Behavior Communication Social Engagement Constructive Thinking Consequence Evaluation Respect for Self and Others Enthusiasm Initiative Resilience 	

Assessments (Formative) <i>To show evidence of meeting the standard/s, students will successfully engage within:</i>		Assessments (Summative) <i>To show evidence of meeting the standard/s, students will successfully complete:</i>	
Formative Assessments: <ul style="list-style-type: none"> • Participation in class discussions/debates • Exit tickets • Quizzes • In-class assignments/activities • Presentations • Group assignments • IXL results 		Benchmarks: <ul style="list-style-type: none"> • Writing prompts • Mid-Unit Assessments Summative Assessments: <ul style="list-style-type: none"> • Unit test • Unit project • Lab activities 	
Differentiated Student Access to Content: Teaching and Learning Resources/Materials			
Core Resources	Alternate Core Resources <i>IEP/504/At-Risk/ESL</i>	ELL Core Resources	Gifted & Talented Core Resources
<ul style="list-style-type: none"> • Science Studies Weekly - Grade One • Teacher created reading guides and presentations 	<ul style="list-style-type: none"> • Modified/leveled readings from Science Studies Weekly - Grade One • Teacher created reading guides and presentations 	<ul style="list-style-type: none"> • Translated and modified readings from Science Studies Weekly - Grade One • Translated teacher created reading guides and presentations 	<ul style="list-style-type: none"> • Science Studies Weekly - Grade One • Teacher created reading guides and presentations
Supplemental Resources			
<ul style="list-style-type: none"> • Chromebooks • SmartBoard • IXL • Teacher Online Resources • Science A-Z • 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"> • Encourage creative expression and thinking by allowing students to choose 	<ul style="list-style-type: none"> • Provide graphic organizers for additional support or encourage students to create digital multimedia 	<ul style="list-style-type: none"> • Utilize visual supports and graphic organizers • Use prompts and model directions 	<ul style="list-style-type: none"> • Encourage students to explore concepts in depth and encourage

<p>how to approach a problem or assignment.</p> <ul style="list-style-type: none"> • Jigsaws • Think-Pair-Share • Boost engagement with material by providing opportunities for differentiation, group work, and alternative assignments/assessments where appropriate • Provide feedback utilizing a growth mindset and praise what is done correctly based upon effort, attitude and strategy. 	<p>to showcase knowledge.</p> <ul style="list-style-type: none"> • Use prompts and model directions • Provide opportunities to model talk during read alouds, and scaffold talk during whole class and small group discussions • Extended time for revisions or opportunity to identify and develop areas of personal interest 	<ul style="list-style-type: none"> • Provide opportunities to model talk during read alouds, and scaffold talk during whole class and small group discussions • Device used for translation purposes • 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. 	<p>independent studies or investigations.</p> <ul style="list-style-type: none"> • Modeling or independent student-led research • Use of higher leveled text and/or writing assignments • Utilize differentiation in the areas of acceleration, enrichment, and grouping
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<p>NJSLS CAREER READINESS, LIFE LITERACIES & KEY SKILLS</p>	<p>Disciplinary Concept:</p>	
	<p>Core Ideas:</p>	<p>Critical thinkers must first identify a problem then develop a plan to address it to effectively solve the problem.</p>
	<p>Performance Expectation/s:</p>	<ul style="list-style-type: none"> • 9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem. • 9.4.2.CT.2: Identify possible approaches and resources to execute a plan. • 9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).
	<p>Career Readiness, Life Literacies, & Key Skills Practices</p>	
	<ul style="list-style-type: none"> • Act as a responsible and contributing community members and employee. • Attend to financial well-being. • Consider the environmental, social and economic impacts of decisions. • Demonstrate creativity and innovation. • Utilize critical thinking to make sense of problems and persevere in solving them. • Model integrity, ethical leadership and effective management • Plan education and career paths aligned to personal goals. • Use technology to enhance productivity increase collaboration and communicate effectively. • Work productively in teams while using cultural/global competence. 	

Marking Period	Unit Title	Recommended Instructional Days
2-3	Structure, Function, and Information Processing	13 weeks
NJSLS - Science: Title	NJSLS - Science: Performance Expectations	Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-S within Unit
From Molecules to Organisms: Structures and Processes	<ul style="list-style-type: none"> ● 1-LS1-1: Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs. ● 1-LS1-2: Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive. 	<p>Essential Question/s:</p> <ol style="list-style-type: none"> 1. What is structure? 2. What is function? 3. Why do some animals have stripes? 4. Why do animals look the way they do? 5. Why do pine trees have pointy leaves? 6. How does a lily pad float? 7. What can you learn from animals and plants? 8. Why do kangaroos jump without getting tired? 9. Why does the lion lick her baby? 10. What is happening to the pinecone? 11. Why does the parent and baby look different? 12. What is happening to the seed? 13. Why can some seeds do this? <p>Activity Description:</p> <ul style="list-style-type: none"> ● Article analysis ● Vocabulary activities ● Video/photo analysis ● Draw a picture of an imaginary machine. What does it do? ● Discuss: What are some things you can do to strengthen your muscles? How does strengthening your muscles help you to function better? What can you do to keep your teeth strong? How do you think strong people treat others? ● Structure and Function Activity ● Dirty Teeth / Egg Simulation ● Investigation: Why Does a Plant Have a Stem? ● Match Structure and Function ● Weekly Phenomenon Investigation: Why do some animals have stripes? ● Draw a self portrait. Label the parts of your body. Write about how these body parts help you in your environment. For example, how do you use your feet?
Heredity: Inheritance and Variation of Traits	<ul style="list-style-type: none"> ● 1-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. 	
Engineering Design	<ul style="list-style-type: none"> ● 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. 	
FOUNDATION Disciplinary: Core Idea	FOUNDATION Disciplinary: Statement	
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.	
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.	<ul style="list-style-type: none"> ● Discuss: How can I support my friends who might have handicaps? How do I affect an animal's environment? What is something special or unique about you? ● Exploration: Identify and analyze animal body parts that are specifically adapted for survival, such as specialized eyes, ears, noses, feet, mouths, tails, and coverings. ● Students will work in small groups to create a piece of collaborative art depicting an animal by thinking about the parts that the animal needs. ● Weekly Phenomenon Investigation: Why do animals look the way they do? ● Discuss: What is your favorite animal? What does it look like? Why is it your favorite? Where does your favorite animal live? Are there any ways you can adapt to face challenges? ● Compare and contrast temperate forest and rainforest animals. ● Graphic organizer: Animal Adaptations ● Card Sort: Grasslands or Wetlands ● Blubber Experiment ● Draw a picture of your favorite animal. Write about the place where this animal lives. ● Weekly Phenomenon Investigation: Why do pine trees have pointed leaves? ● Discuss: What is your favorite part of a plant? What can you do to take care of a plant? What are some of your needs? What are some of the things you do to meet your needs? ● Graphic organizer: What is a Plant? ● Find the Stem Activity ● Flower and Fruit Matching Game ● Matching Activity - New plants grow from seeds. Match the seed to the plant it will become. ● Graphic Organizer: What do plant parts do? ● Weekly Phenomenon Investigation: How does a lily pad float? ● Discuss: How many places have you lived? Have you ever been really thirsty? How important is it to have clean water to drink? What do you like about the place you live? What do you wish you could change about the place you live? What could you do about that? ● Conduct a science experiment that will show how a cactus stem stores water. ● Create a model of a rainforest: Each student will need a two-liter soda bottle, cut in half, water, pebbles, activated charcoal, soil, and a small tropical plant. Tell the students to layer the bottom of the
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.	
LS3.A: Inheritance of Traits	Young animals are very much, but not exactly like, their parents. Plants also are very much, but not exactly, like their parents.	
LS3.B: Variation of Traits	Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways.	
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.	
FOUNDATION Science and Engineering Practices: Core Idea	FOUNDATION Science and Engineering Practices: Statement	
Constructing Explanations and Designing Solutions	<ul style="list-style-type: none"> ● Use materials to design a device that solves a specific problem or a solution to a specific problem. ● Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. 	
Obtaining, Evaluating, and Communicating Information	Read grade-appropriate texts and use media to obtain scientific information to determine patterns in the natural world.	
Scientific Knowledge is Based on Empirical Evidence	Scientists look for patterns and order when making observations about the world.	
Developing and Using Models	Develop a simple model based on evidence to represent a proposed object or tool.	
FOUNDATION Crosscutting Concepts:	FOUNDATION Crosscutting Concepts:	

<i>Core Idea</i>	<i>Statement</i>	
Structure and Function	The shape and stability of structures of natural and designed objects are related to their function(s).	
Influence of Science, Engineering and Technology 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.	
Patterns	Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.	
Social and Emotional Learning: <i>Competencies</i>	Social and Emotional Learning: <i>Sub-Competencies</i>	
<ul style="list-style-type: none"> ● Self-Awareness ● Self-Management ● Responsible Decision Making ● Social Awareness ● Relationship Skills ● Motivation 	<ul style="list-style-type: none"> ● Emotional Awareness ● Internal Regulation ● Behavior Control ● Goal Pursuance ● Appreciating Social and Environment Diversity ● Adaptive Behavior ● Communication ● Social Engagement ● Constructive Thinking ● Consequence Evaluation ● Respect for Self and Others ● Enthusiasm ● Initiative ● Resilience 	<p>soda bottle with the pebbles, charcoal, and soil. Instruct the students to plant the tropical plant in the soil and water it. Use clear tape to reattach the top of the plastic bottle. Evaluate: As a class, discuss how the plant inside of the rainforest model will have its needs met.</p> <ul style="list-style-type: none"> ● Investigation: What Does A Water Lily Need? ● Draw two plants that live in very different places. Do they look different? Why do they look different? ● Weekly Phenomenon Investigation: What can you learn from animals and plants? ● Students will build a device that mimics how a living thing's parts help it in its environment. The students will think of two plans that use a living thing as inspiration. They will draw both plans and choose one to build. The focus of the lessons will be on the process and not the product. ● Discuss: What is your favorite animal? What pet(s) have you had? How did your pet impact your environment? If you could have any characteristic that an animal has, what would it be and why? ● Draw a picture of your favorite animal. Label its parts to make a model. ● Discuss: Can you think of a time someone modeled kind behavior? What did they do? What did they say? How did it make you feel? How many friends do you have? How many of your friends have the same favorite color as you? Analyze the data. What is your favorite toy? What is it a model for? ● Graphic Organizer: A Model... ● Animal Jumps Activity - Students will look at a chart depicting how far various animals can jump. Then, students will complete the graph to show how far they can jump. ● Weekly Phenomenon Investigation: Why does the lion lick her baby? ● Discuss: How do you wash your hands? How do you brush your teeth? Why is it healthy to keep clean? How can you prevent spreading germs to other people? How can you keep your head and brain protected? ● Feed the Baby Birds Game: Place the baby bird cups around a container of shredded paper. Place the worms from the graphic organizer inside the shredded paper. Give each student a clothespin. Tell the students to pretend to be a grown-up bird. The clothespin is their "beak." They will use the clothespin to pick up a worm and feed it to a baby bird by putting it in their cup. Tell the students that these baby birds are very picky eaters. Each baby bird will only eat a worm that has a picture of something that matches the consonant

digraph on the baby bird. For example, the “th” baby bird will only eat worms that have a picture of something that makes a /th/ sound. Encourage the students to work together to feed the worms to the correct baby birds using their clothespins. Evaluate: Give the students time to discuss their experiences playing the game

- Activity: Make a kangaroo pouch
- Photo analysis - look at pictures of animals and their babies. Respond to the following: What are they doing to protect their babies?
- Writing prompt: Write about a time you took care of a baby or a younger sibling or friend. How did you help them meet their needs?
- Discuss: What are some things you do to protect your body when the weather changes? What can you do if you don't have warm clothing for cold weather? How can you take care of your well-being when something changes around you? Who can you ask for help if you need it?
- Create a Seed Mini Book
- Graphic organizer: Seeds and Fruits
- Pine Cone Dissection - Model for the students how to dissect the pine cone and find the seeds inside. Show the students the “wings” on the pine cone seed that help it to catch the wind and fall slowly. Encourage the students to look at the parts of the pine cone with a magnifying glass.
- Writing prompt: Have you ever seen dandelions in the grass? Write about how you think they got there.
- Weekly Phenomenon Investigation: The parent and baby look different. Why?
- Discuss: In what ways are you similar to your parents or caregivers? What is your favorite similarity you have with your parents or caregivers? How are you different from your parents or caregivers? What is your favorite thing about you?
- Baby Animal Sounds Activity - Explore: Tell the students they are going to play a guessing game where they will try to guess what baby animal you are saying. You will say the sounds in the word very slowly, and they will need to put them together to make a word. For example, if you say /ch/ /i/ /k/ they would say “chick.” A chick is a baby chicken.
- Graphic Organizer: Animal Babies Change as They Grow
- Same and Different - Look at pictures of animals and its offspring. Circle the things that are the same in one color. Circle the things that are different in another color.

- Draw a picture of yourself. Now, draw a picture of a relative who helps you feel safe and cared for. Write down some ways that you look like your relative.
- Weekly Phenomenon Investigation: What is happening to the seed?
- Discuss: What are things that help you grow? What can you do to help others grow too? How have you grown recently? Have you lost teeth? Grown a clothing size? Gotten taller? How can you help your mind grow?
- Activity - Dissect a Lima Bean Seed
- Classify Seeds: Divide the students into groups of four or five. Give each group a collection of seeds, clear tape, and a large piece of construction paper. Tell the students to sort the seeds based on their features and use the clear tape to attach the seed to the construction paper. Tell the students to decide on a heading for each group of seeds and to write the heading on the construction paper.
- Conduct an experiment to watch how seeds grow.
- Label Plant Life Cycle
- Writing prompt: Have you ever planted a seed? Write about it. If you have never planted a seed, write about what you think it would be like.
- Discuss: What can you do to protect yourself when you play, the way a seed protects itself by parachuting? What are some characteristics you have that help you to be successful? What is something new you want to try that will help you at school?
- Writing prompt: Can you think of an invention inspired by a plant? What might it be? Draw a picture of it.

Interdisciplinary Connections: Content: ;NJSLS#:

ELA/Literacy -

- RI.1.1 - Ask and answer questions about key details in a text.
- RI.1.2 - Identify the main topic and retell key details of a text.
- RI.1.10 - With prompting and support, read informational texts appropriately complex for grade.
- W.1.7 - Participate in shared research and writing projects (e.g., explore a number of “how-to” books on a given topic and use them to write a sequence of instructions).
- W.1.8 - With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

Mathematics -

		<ul style="list-style-type: none"> ● MP.2 - Reason abstractly and quantitatively. ● MP.5 - Use appropriate tools strategically. ● 1.MD.A.1 - Order three objects by length; compare the lengths of two objects indirectly by using a third object. ● 1.NBT.B.3 - Compare two two-digit numbers based on the meanings of the tens and one digits, recording the results of comparisons with the symbols $>$, $=$, and $<$. ● 1.NBT.C.4 - Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning uses. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten. (1-LS1-2) ● 1.NBT.C.5 - Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used. ● 1.NBT.C.6 - Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. <p>Technology -</p> <ul style="list-style-type: none"> ● 8.1.2.DA.3: Identify and describe patterns in data visualizations. ● 8.1.2.DA.4: Make predictions based on data using charts or graphs.
Assessments (Formative) <i>To show evidence of meeting the standard/s, students will successfully engage within:</i>		Assessments (Summative) <i>To show evidence of meeting the standard/s, students will successfully complete:</i>
<u>Formative Assessments:</u> <ul style="list-style-type: none"> ● Participation in class discussions/debates ● Exit tickets ● Quizzes ● In-class assignments/activities ● Presentations ● Group assignments ● IXL results 		<u>Benchmarks:</u> <ul style="list-style-type: none"> ● Writing prompts ● Mid-Unit Assessments <u>Summative Assessments:</u> <ul style="list-style-type: none"> ● Unit test ● Unit project ● Lab activities
Differentiated Student Access to Content:		

Teaching and Learning Resources/Materials			
Core Resources	Alternate Core Resources <i>IEP/504/At-Risk/ESL</i>	ELL Core Resources	Gifted & Talented Core Resources
<ul style="list-style-type: none"> • Science Studies Weekly - Grade One • Teacher created reading guides and presentations 	<ul style="list-style-type: none"> • Modified/leveled readings from Science Studies Weekly - Grade One • Teacher created reading guides and presentations 	<ul style="list-style-type: none"> • Translated and modified readings from Science Studies Weekly - Grade One • Translated teacher created reading guides and presentations 	<ul style="list-style-type: none"> • Science Studies Weekly - Grade One • Teacher created reading guides and presentations
Supplemental Resources			
<ul style="list-style-type: none"> • Chromebooks • SmartBoard • IXL • Teacher Online Resources • Science A-Z • BrainPop • Applicable educational videos 			
Differentiated Student Access to Content: Recommended <i>Strategies & Techniques</i>			
Core Resources	Alternate Core Resources <i>IEP/504/At-Risk/ESL</i>	ELL Core Resources	Gifted & Talented Core
<ul style="list-style-type: none"> • Encourage creative expression and thinking by allowing students to choose how to approach a problem or assignment. • Jigsaws • Think-Pair-Share • Boost engagement with material by providing opportunities for differentiation, group work, and alternative assignments/assessments where appropriate • Provide feedback utilizing a growth mindset and praise what is done correctly based upon effort, attitude and strategy. 	<ul style="list-style-type: none"> • Provide graphic organizers for additional support or encourage students to create digital multimedia to showcase knowledge. • Use prompts and model directions • Provide opportunities to model talk during read alouds, and scaffold talk during whole class and small group discussions • Extended time for revisions or opportunity to identify and develop areas of personal interest 	<ul style="list-style-type: none"> • Utilize visual supports and graphic organizers • Use prompts and model directions • Provide opportunities to model talk during read alouds, and scaffold talk during whole class and small group discussions • Device used for translation purposes • 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. 	<ul style="list-style-type: none"> • Encourage students to explore concepts in depth and encourage independent studies or investigations. • Modeling or independent student-led research • Use of higher leveled text and/or writing assignments • Utilize differentiation in the areas of acceleration, enrichment, and grouping
	Disciplinary Concept:		

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

Marking Period	Unit Title	Recommended Instructional Days
4	Space Systems: Patterns and Cycles	8 weeks
NJSLS - Science: Title	NJSLS - Science: Performance Expectations	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"> ● 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. 	<u>Essential Question/s:</u> <ol style="list-style-type: none"> 1. What is measurement and data? 2. How big is the moon? 3. What is the Milky Way? 4. Where does the sun come up and go down? 5. What causes daytime? 6. Does the sun move?
Engineering Design	<ul style="list-style-type: none"> ● K-2-ETS1-1: Ask questions, make observations, and gather information 	

	<p>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> <ul style="list-style-type: none"> ● 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. 	<ol style="list-style-type: none"> 7. Is this a star? 8. What causes nighttime? 9. Does the moon change shape? 10. What season is it in Australia right now? 11. How does a sundial work? <p>Activity Description:</p> <ul style="list-style-type: none"> ● Article analysis ● Vocabulary activities ● Video/photo analysis ● Weekly Phenomenon Investigation: How big is the moon? ● Discuss: What data can you gather when you go outside? What data can you gather when you meet a new friend? How does measuring things help you understand the world around you? ● Measure an astronaut’s boot print (diagram provided). Tell the students that they are going to compare the astronaut’s boot to other objects in the classroom. ● Activity - How far can you jump? Measure how far you jumped. Write down your measurement. Write down what you used to measure. ● Practice measuring length, width, weight and distance. ● Measure the Earth - Look at a provided picture of the Earth. Use a penny to measure how many moons can fit across the Earth. ● Weekly Phenomenon ● What is the Milky Way? ● Discuss: How does the sun affect your mood? What can we learn from the sun, the moon, and the stars? What do you think it takes to be an astronaut? ● Visualization Activity - Instruct students to close their eyes and imagine the clothing that an astronaut wears in outer space. Tell the students that when they make a picture in their mind, it is called visualization. Ask the students to describe the kind of clothing they are imagining when they visualize an astronaut. ● Write about a time you looked at the night sky. Where were you? Who were you with? What did you see? ● Graphic organizer: Planets Go Around a Star ● Graphic organizer: A Moon Goes Around a Planet ● Create a model of an asteroid ● Sorting Activity - Objects in space; organize from smallest to largest. ● Weekly Phenomenon Investigation: Where does the sun come up and go down?
FOUNDATION Disciplinary: Core Idea	FOUNDATION Disciplinary: Statement	
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.	
ESS1.B: Earth and the Solar System	Seasonal patterns of sunrise and sunset can be observed, described, and predicted.	
ETS1.A: Defining and Delimiting Engineering Problems	<ul style="list-style-type: none"> ● A situation that people want to change or create can be approached as a problem to be solved through engineering. ● Asking questions, making observations, and gathering information are helpful in thinking about problems. ● Before beginning to design a solution, it is important to clearly understand the problem. 	
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.	
FOUNDATION Science and Engineering Practices: Core Idea	FOUNDATION Science and Engineering Practices:	

	<i>Statement</i>	
Planning and Carrying Out Investigations	Make observations (firsthand or from media) to collect data that can be used to make comparisons.	<ul style="list-style-type: none"> Discuss: How does observation help you learn new things? What do patterns tell you about things? What are your favorite colors to see in a sunrise or sunset? What is your favorite time of the day? What are some things you do when the sun rises? What are some things you do when the sun sets? Writing: Write about how the sun changes during the day while you are at school. Graphic organizer: The Sun Has a Pattern Graphic organizer: The Sun Makes Day Shadow Investigation: Measure your shadow in the morning. Measure it again in the afternoon. Write down your measurements. What changed? Why? Discuss: What are some predictable patterns you know? What do you think about the stars? How do you feel when you look at the night sky? Graphic organizer: Daytime and Nighttime - Draw a picture of what you see and do in the daytime. Draw a picture of what you see and do in the nighttime. Write about the patterns you notice. Graphic organizer: Objects in the Night Sky Constellation Cards: Divide the students into small groups. Give each group constellation cards made from the graphic organizer, pipe cleaners, and beads. Tell the students to string the beads onto the pipe cleaners to represent stars. Challenge the students to make constellation shapes using the beads and pipe cleaners. Writing: Write about a time you looked at the night sky. Weekly Phenomenon Investigation: Does the moon change shape? Writing: Tell about the phases of the moon and what the shapes look like to you. Discuss: How have you changed this year? What ways have you stayed the same this year? How can you deal with change positively? Phases of the Moon Graphic Organizer Chart the Moon - Home Moon Chart Activity Writing: If you have big emotions about a change, what can you do? Who can you talk to? Discuss: Rank seasons in order from your favorite to your least favorite. What changes happen when it turns from summer to fall? What changes do you see happen in the spring? How can you respond to changes positively? What can you do if a change feels really hard to manage? Graphic Organizer: Seasons Activity: Label and Match the Season
Asking Questions and Defining Problems	<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. 	
Developing and Using Models	Develop a simple model based on evidence to represent a proposed object or tool.	
Analyzing and Interpreting Data	<ul style="list-style-type: none"> Analyze data from tests of an object or tool to determine if it works as intended. Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. 	
FOUNDATION Crosscutting Concepts: <i>Core Idea</i>	FOUNDATION Crosscutting Concepts: <i>Statement</i>	
Patterns	Patterns in the natural world can be observed, used to describe phenomena, and used as evidence.	
Scientific Knowledge Assumes an Order and Consistency in Natural Systems	<ul style="list-style-type: none"> Science assumes natural events happen today as they happened in the past. Many events are repeated. 	
Structure and Function	The shape and stability of structures of natural and designed objects are related to their function(s).	
Social and Emotional Learning: <i>Competencies</i>	Social and Emotional Learning: <i>Sub-Competencies</i>	
<ul style="list-style-type: none"> Self-Awareness Self-Management Responsible Decision Making 	<ul style="list-style-type: none"> Emotional Awareness Internal Regulation Behavior Control 	

<ul style="list-style-type: none"> ● Social Awareness ● Relationship Skills ● Motivation 	<ul style="list-style-type: none"> ● Goal Pursuance ● Appreciating Social and Environment Diversity ● Adaptive Behavior ● Communication ● Social Engagement ● Constructive Thinking ● Consequence Evaluation ● Respect for Self and Others ● Enthusiasm ● Initiative ● Resilience 	<ul style="list-style-type: none"> ● Writing: In your opinion, what is the best season? Why? ● Weekly Phenomenon Investigation: How does a sundial work? ● Discuss: What are things you like to do during the day? What do you do differently in the morning than at night? How can you tell it is morning? How can you tell it is night? What are different things you do at different times of day? ● Engineering Design: Students will engineer their own sundial to discover how relative time can be tracked. They will look at daylight patterns to determine which season has the longest days. After, have students tell about the sundial they made and how it works. <p>Interdisciplinary Connections: Content: ;NJSLS#:</p> <p>ELA/Literacy -</p> <ul style="list-style-type: none"> ● RI.1.1: Ask and answer questions about key details in a text. ● RI.1.2: Identify the main topic and retell key details of a text. ● RI.1.10: With prompting and support, read informational texts appropriately complex for grade. ● W.1.7 - Participate in shared research and writing projects (e.g., explore a number of “how-to” books on a given topic and use them to write a sequence of instructions). ● W.1.8 - With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question. ● 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.2.8: Recall information from experiences or gather information from provided sources to answer a question. ● 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. <p>Mathematics -</p> <ul style="list-style-type: none"> ● MP.2 - Reason abstractly and quantitatively. ● MP.4 - Model with mathematics. ● MP.5 - Use appropriate tools strategically. ● 1.OA.A.1 - Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all
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		<p>positions, e.g., by using objects, drawings, and equations to represent the problem.</p> <ul style="list-style-type: none"> 1.MD.C.4 - Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another. <p>Technology -</p> <ul style="list-style-type: none"> 8.1.2.DA.3: Identify and describe patterns in data visualizations. 8.1.2.DA.4: Make predictions based on data using charts or graphs. 	
Assessments (Formative) <i>To show evidence of meeting the standard/s, students will successfully engage within:</i>		Assessments (Summative) <i>To show evidence of meeting the standard/s, students will successfully complete:</i>	
<u>Formative Assessments:</u> <ul style="list-style-type: none"> Participation in class discussions/debates Exit tickets Quizzes In-class assignments/activities Presentations Group assignments IXL results 		<u>Benchmarks:</u> <ul style="list-style-type: none"> Writing prompts Mid-Unit Assessments <u>Summative Assessments:</u> <ul style="list-style-type: none"> Unit test Unit project Lab activities 	
Differentiated Student Access to Content: Teaching and Learning Resources/Materials			
Core Resources	Alternate Core Resources IEP/504/At-Risk/ESL	ELL Core Resources	Gifted & Talented Core Resources
<ul style="list-style-type: none"> Science Studies Weekly - Grade One Teacher created reading guides and presentations 	<ul style="list-style-type: none"> Modified/leveled readings from Science Studies Weekly - Grade One Teacher created reading guides and presentations 	<ul style="list-style-type: none"> Translated and modified readings from Science Studies Weekly - Grade One Translated teacher created reading guides and presentations 	<ul style="list-style-type: none"> Science Studies Weekly - Grade One Teacher created reading guides and presentations
Supplemental Resources			
<ul style="list-style-type: none"> Chromebooks SmartBoard IXL Teacher Online Resources Science A-Z 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"> • Encourage creative expression and thinking by allowing students to choose how to approach a problem or assignment. • Jigsaws • Think-Pair-Share • Boost engagement with material by providing opportunities for differentiation, group work, and alternative assignments/assessments where appropriate • Provide feedback utilizing a growth mindset and praise what is done correctly based upon effort, attitude and strategy. 	<ul style="list-style-type: none"> • Provide graphic organizers for additional support or encourage students to create digital multimedia to showcase knowledge. • Use prompts and model directions • Provide opportunities to model talk during read alouds, and scaffold talk during whole class and small group discussions • Extended time for revisions or opportunity to identify and develop areas of personal interest 	<ul style="list-style-type: none"> • Utilize visual supports and graphic organizers • Use prompts and model directions • Provide opportunities to model talk during read alouds, and scaffold talk during whole class and small group discussions • Device used for translation purposes • 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. 	<ul style="list-style-type: none"> • Encourage students to explore concepts in depth and encourage independent studies or investigations. • Modeling or independent student-led research • Use of higher leveled text and/or writing assignments • Utilize differentiation in the areas of acceleration, enrichment, and grouping

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

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>
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