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ELEMENTARY SCIENCE CURRICULUM MAPPING
GRADES K-5 - 2021

Long Branch Public Schools Science Curriculum Mapping Kindergarten					
Unit	1 Weather	2 Effects of the Sun	3 Basic Needs of Humans	4 Basic Needs of Living Things	5 Pushes and Pulls
Time Frame	10 Days - Equivalent to 42 minutes daily (September)	15 Days - Equivalent to 42 minutes daily (October- November)	15 Days - Equivalent to 42 minutes daily (December- January)	20 Days - Equivalent to 42 minutes daily (February- April)	15 Days - Equivalent to 42 minutes daily (May - June)
Overview	<p>In this unit of study, students will develop an understanding of patterns and variations in local weather and the use of weather forecasting to prepare for and respond to severe weather. The crosscutting concepts of <i>patterns</i>; <i>cause and effect</i>; <i>interdependence of science, engineering, and technology</i>; and the <i>influence of engineering, technology, and science on society and the natural world</i> are called out as organizing concepts for the disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in <i>asking questions</i>, <i>analyzing and interpreting data</i>, and <i>obtaining, evaluating, and communicating information</i>. Students are also expected to use these practices to demonstrate understanding of the core ideas.</p> <p><u>Note:</u> Unlike other science units, the Weather unit is intended to become a part of the classroom routine throughout the year. Some weather patterns are not obvious unless the students collect data over long periods of time. For example, in some locations it is sunnier during some parts of a year than others. The temperature outside will change from fall, winter, spring, to summer. Also, during some periods, the weather data should be recorded in the morning and then again in the afternoon. Students will be able to observe patterns in temperature through the course of the day.</p>	<p>During this unit of study, students apply an understanding of the effects of the sun on the Earth's surface. The crosscutting concepts of <i>cause and effect</i> and <i>structure and function</i> are called out as organizing concepts for this disciplinary core idea. Students are expected to demonstrate grade-appropriate proficiency in <i>developing and using models</i>; <i>planning and carrying out investigations</i>; <i>analyzing and interpreting data</i>; and <i>designing solutions</i>. Students are also expected to use these practices to demonstrate understanding of the core ideas.</p>	<p><i>How do people impact the environment as they gather and use what they need to live and grow?</i></p> <p>In this unit of study, students develop an understanding of what humans need to survive and the relationship between their needs and where they live. The crosscutting concept of <i>cause and effect</i> is called out as the organizing concept for the disciplinary core ideas. Students demonstrate grade-appropriate proficiency in <i>asking questions</i> and <i>defining problems</i>, and in <i>obtaining, evaluating, and communicating information</i>. Students are also expected to use these practices to demonstrate understanding of the core ideas.</p>	<p><i>Where do plants and animals live and why do they live there?</i></p> <p>In this unit of study, students develop an understanding of what plants and animals need to survive and the relationship between their needs and where they live. Students compare and contrast what plants and animals need to survive and the relationship between the needs of living things and where they live. The crosscutting concepts of <i>patterns</i> and <i>systems and system models</i> are called out as organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in <i>developing and using models</i>; <i>analyzing and interpreting data</i>, and <i>engaging in argument from evidence</i>. Students are also expected to use these practices to demonstrate understanding of the core ideas.</p>	<p><i>What happens if you push or pull an object harder?</i></p> <p>During this unit of study, students apply an understanding of the effects of different strengths or different directions of pushes and pulls on the motion of an object to analyze a design solution. The crosscutting concept of <i>cause and effect</i> is called out as the organizing concept for this disciplinary core idea. Students are expected to demonstrate grade-appropriate proficiency in <i>planning and carrying out investigations</i> and <i>analyzing and interpreting data</i>. Students are also expected to use these practices to demonstrate understanding of the core ideas.</p>
Learning Objectives and Understandings	Use scientific reasoning to ask questions, make observations, and investigate ideas to acquire knowledge and solve problems. Understand how the temperature of Earth's surface changes over time. Reduce the effects of the Sun on Earth's surface.	Follow a step-by-step method to solve a problem. Use scientific reasoning to ask questions, make observations, and investigate ideas to acquire knowledge and solve problems. Understand how the temperature of Earth's surface changes over time.	Use scientific reasoning to ask questions, make observations, and investigate ideas to acquire knowledge and solve problems. Describe patterns of what plants and animals (including humans) need to survive.	Follow a step-by-step method to solve a problem. Describe patterns of what plants and animals (including humans) need to survive.	Follow a step-by-step method to solve a problem. Use scientific reasoning to ask questions, make observations, and investigate ideas to acquire knowledge and solve problems. Compare and contrast the relationship between pushes and pulls.



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	<p>Recognize that weather changes over time. Understand that weather patterns are used to make predictions. Understand that analyzing weather patterns helps people prepare for severe weather. Apply mathematical thinking to solve problems. Collaborate effectively on a diverse and multidisciplinary team. Communicate effectively for specific purposes and settings. Practice ethical behavior in all settings.</p>	<p>Reduce the effects of the Sun on Earth's surface. Recognize that weather changes over time. Understand that weather patterns are used to make predictions. Understand that analyzing weather patterns helps people prepare for severe weather. Apply mathematical thinking to solve problems. Collaborate effectively on a diverse and multidisciplinary team. Communicate effectively for specific purposes and settings. Practice ethical behavior in all settings.</p>	<p>Analyze how living things impact their natural environment to meet their needs and wants. Communicate solutions that will lessen the negative impact of humans on the natural environment. Apply operations and algebraic thinking to solve problems. Apply patterns and data to solve problems. Communicate effectively for specific purposes and settings. Collaborate effectively on a diverse and multidisciplinary team. Practice ethical behavior in all settings. Follow a step-by-step method to solve a problem.</p>	<p>Analyze how living things impact their natural environment to meet their needs and wants. Use scientific reasoning to ask questions, make observations, and investigate ideas to acquire knowledge and solve problems. Describe patterns of what plants and animals (including humans) need to survive. Analyze how living things impact their natural environment to meet their needs and wants. Communicate solutions that will lessen the negative impact of humans on the natural environment. Apply operations and algebraic thinking to solve problems. Apply patterns and data to solve problems. Communicate effectively for specific purposes and settings. Collaborate effectively on a diverse and multidisciplinary team. Practice ethical behavior in all settings. Follow a step-by-step method to solve a problem.</p>	<p>Explain that objects can change motion when they collide. Explain the meaning and usage of numbers. Apply mathematical thinking to solve problems. Communicate effectively for specific purposes and settings. Collaborate effectively on a diverse and multidisciplinary team. Practice ethical behavior in all settings.</p>
Essential Questions	<p><i>How do weather and seasons affect us?</i> <i>How are the seasons different?</i> <i>What happens in different kinds of weather?</i> <i>How can you stay safe in bad weather?</i> <i>What is the effect of sunlight on our earth?</i> <i>What are the patterns of weather throughout the year where you live?</i> <i>How does weather affect our lives?</i></p>	<p><i>How does the sun affect the Earth?</i> <i>What is the effect of sunlight on the earth's surface? • How can the warming effects of the sun be reduced?</i></p>	<p><i>What are human basic needs?</i> <i>How can humans impact their natural environment to meet their needs?</i> <i>How can humans lessen their negative impact on the natural environment?</i></p>	<p>What are the basic needs of plants and animals? How can plants and animals impact their natural environment to meet their needs?</p>	<p><i>In what ways do forces impact your daily life?</i> <i>How are pushes and pulls related?</i> <i>How can a step-by-step process help you design or improve a solution to a problem?</i></p>
Standards	<p>(K-ESS2-1) (K-ESS3-2) (K-2-ETS1-1)</p>	<p>K-PS3-1 K-PS3-2 K-2-ETS1-1 K-2-ETS1-2</p>	<p>K-ESS3-3 K-2 ETS1-1</p>	<p>K-LS1-1 K-ESS3-1 K-ESS2-2</p>	<p>K-PS2-1 K-PS2-2 K-2-ETS1-3</p>
Education for Sustainability Standards	<p>A Healthy and Sustainable Future is Possible Read the Feedback Live by the Natural Laws We are all Responsible</p>	<p>A Healthy And Sustainable Future Is Possible Healthy Systems Have Limits Think 1000 Years It All Begins With A Change In Thinking Live By The Natural Laws</p>	<p>A Healthy And Sustainable Future Is Possible We Are All In This Together Healthy Systems Have Limits Diversity Makes Our Lives Possible It All Begins With A Change In Thinking Live By The Natural Laws</p>	<p>A Healthy And Sustainable Future Is Possible Healthy Systems Have Limits Diversity Makes Our Lives Possible It All Begins With A Change In Thinking Live By The Natural Laws We Are All Responsible</p>	<p>We Are All In This Together It All Begins With A Change In Thinking We Are All Responsible</p>



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			We Are All Responsible		
Assessment	Formative Check for Understanding Graphic Organizers & Guided Note Taking Directed Reading Cooperative Group Learning Homework Journal Entries Summative Unit Exams Project Based Assessments	Formative Check for Understanding Graphic Organizers & Guided Note Taking Directed Reading Cooperative Group Learning Homework Journal Entries Summative Unit Exams Project Based Assessments	Formative Check for Understanding Graphic Organizers & Guided Note Taking Directed Reading Cooperative Group Learning Homework Journal Entries Summative Unit Exams Project Based Assessments	Formative Check for Understanding Graphic Organizers & Guided Note Taking Directed Reading Cooperative Group Learning Homework Journal Entries Summative Unit Exams Project Based Assessments	Formative Check for Understanding Graphic Organizers & Guided Note Taking Directed Reading Cooperative Group Learning Homework Journal Entries Summative Unit Exams Project Based Assessments



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Long Branch Public Schools
Science Curriculum Mapping
First Grade

Unit	1 Patterns of Changes in the Sky	2 Light and Sound	3 Characteristics of Living Things	4 Mimicking Organisms to Solve Problems
Time Frame	45 Days or 1 Marking Period	45 Days or 1 Marking Period	45 Days or 1 Marking Period	45 Days or 1 Marking Period
Overview	<p>What predictable, observable patterns occur due to the motion of the sun, moon and stars?</p> <p>How is the amount of daylight related to the time of year?</p> <p>What objects are in the sky and how do they seem to move?” Students are able to observe, describe, and predict some patterns of the movement of objects in the sky. The crosscutting concepts of patterns; cause and effect; structure and function; and influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas.</p> <p>In this unit of study, students observe, describe, and predict some patterns in the movement of objects in the sky. Students are expected to demonstrate grade-appropriate proficiency in planning and carrying out investigations and analyzing and interpreting data. Students are also expected to use these practices to demonstrate understanding of the core ideas</p>	<p>In this unit of study, students develop an understanding of the relationship between sound and vibrating materials as well as between the availability of light and the ability to see objects. The idea that light travels from place to place can be understood by students at this level by placing objects made with different materials in the path of a beam of light and determining the effect of the different materials.</p> <p>The crosscutting concept of <i>cause and effect</i> is called out as an organizing concept for the disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in <i>planning and carrying out investigations, constructing explanations, and designing solutions</i>. Students are also expected to use these practices to demonstrate understanding of the core ideas.</p> <p>How would we communicate over a distance without the use of any of the devices that people currently use? Students apply their knowledge of light and sound to engage in engineering design to solve a simple problem involving communication with light and sound. The crosscutting concepts of structure and function and influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for the disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in constructing explanations and designing solutions, asking questions and defining problems, and developing and using models. Students are also expected to use these practices to demonstrate understanding of the core ideas.</p>	<p>In this unit of study, students develop an understanding of how plants and animals use their external parts to help them survive, grow, and meet their needs, as well as how the behaviors of parents and offspring help offspring survive. The understanding that young plants and animals are like, but not exactly the same as, their parents is developed. The crosscutting concept of patterns is called out as an organizing concept for the disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in obtaining, evaluating, and communicating information and constructing explanations. Students are also expected to use these practices to demonstrate understanding of the core ideas.</p>	<p>In this unit of study, students develop an understanding of how plants and animals use their parts to help them survive, grow, and meet their needs. Students also need opportunities to develop possible solutions. As students develop possible solutions, one challenge will be to keep them from immediately implementing the first solution they think of and to instead think through the problem carefully before acting. Having students sketch their ideas or make a physical model is a good way to engage them in shaping their ideas to meet the requirements of the problem. The crosscutting concept of structure and function is called out as an organizing concept for the disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in constructing explanations, designing solutions, and in developing and using models. Students are expected to use these practices to demonstrate understanding of the core ideas</p>
Learning Objectives	<p>Use observations of the sun, moon, and stars to describe patterns that can be predicted. Make observations at different times of year to relate the amount of daylight to the time of year.</p>	<p>Plan and conduct investigations to collect evidence that shows that vibrating materials can make sound and that sound can make materials vibrate. Make observations and demonstrate accounts that objects can be seen only when illuminated. . Plan and conduct an investigation to determine the effects of placing objects made of different materials in the path of a beam of light. Define a problem and use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.</p>	<p>Ask questions to understand how some animals survive in their environment. Obtain information about animal behaviors in order to construct an explanation as to how those behaviors help them survive in the environment. Construct an explanation about how the parts of the plant help the plant to survive.</p>	<p>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. Observe and describe how the shape and stability of structures of natural and designed objects are related to their functions. Develop and use models to design a solution to a human problem by mimicking plant or animal structures. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</p>



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		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.		
Essential Questions	What patterns of change can be predicted when observing the sun, moon, and stars? What is the relationship between the amount of daylight and the time of year?	How are sound and vibration related? How does the appearance of an object change when different amounts of light are applied? What is the effect of different materials in the path of a beam of light? How can light or sound be used to communicate over a distance?	How do animals' physical characteristics help them survive, grow, and meet their needs in their environment? How do plants' physical characteristics help them survive, grow, and meet their needs in their environment?	How can humans mimic how plants and animals use their external parts to help them survive and grow? How can humans learn from the way plants and animals protect themselves and survive in their environment?
Standards	1-ESS1-1 1-ESS1-2 K-2-ETS1-1	1-PS4-1 1-PS4-2 1-PS4-3 1-PS4-4 K-2-ETS1-1 K-2-ETS1-2	1-LS3-1 1-LS1-2	1-LS1-1 K-2-ETS1-2
Education for Sustainability Standards	Healthy Systems Have Limits It All Begins With A Change In Thinking. 11. Live By The Natural Laws We Are All Responsible	A Healthy And Sustainable Future Is Possible We Are All In This Together Healthy Systems Have Limits It All Begins With A Change In Thinking. 11. Live By The Natural Laws	A Healthy And Sustainable Future Is Possible Healthy Systems Have Limits Diversity Makes Our Lives Possible It All Begins With A Change In Thinking Live By The Natural Laws We Are All Responsible	Recognize And Protect The Commons Create Change At The Source Not The Symptom Think 1000 Years It All Begins With A Change In Thinking. Live By The Natural Laws We Are All Responsible
Assessment	Formative Check for Understanding Graphic Organizers & Guided Note Taking Directed Reading Cooperative Group Learning Homework Journal Entries Summative Unit Exams Project Based Assessments	Formative Check for Understanding Graphic Organizers & Guided Note Taking Directed Reading Cooperative Group Learning Homework Journal Entries Summative Unit Exams Project Based Assessments	Formative Check for Understanding Graphic Organizers & Guided Note Taking Directed Reading Cooperative Group Learning Homework Journal Entries Summative Unit Exams Project Based Assessments	Formative Check for Understanding Graphic Organizers & Guided Note Taking Directed Reading Cooperative Group Learning Homework Journal Entries Summative Unit Exams Project Based Assessments



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Long Branch Public Schools
Science Curriculum Mapping
Second Grade

Unit	1 Earth's Land and Water	2 Changes to the Earth's Land and Water	3 Properties and Changes in Matter	4 Relationships in Habitats
Time Frame	45 Days or Marking Period 1	45 Days or Marking Period 2	45 Days or Marking Period 3	45 Days or Marking Period 4
Overview	In this unit of study, students use information and models to identify and represent the shapes and kinds of land and bodies of water in an area and where water is found on Earth. The crosscutting concept of patterns is called out as an organizing concept for these disciplinary core ideas. Students demonstrate grade-appropriate proficiency in developing and using models and obtaining, evaluating, and communicating information. Students are also expected to use these practices to demonstrate understanding of the core ideas.	In this unit of study, students apply their understanding of the idea that wind and water can change the shape of land to compare design solutions to slow or prevent such change. The crosscutting concepts of stability and change; structure and function; and the influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. Students demonstrate grade-appropriate proficiency in asking questions and defining problems, developing and using models, and constructing explanations and designing solutions. Students are also expected to use these practices to demonstrate understanding of the core ideas.	In this unit of study, students demonstrate an understanding of observable properties of materials through analysis and classification of different materials. The crosscutting concepts of patterns, cause and effect, and the influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. Students demonstrate grade-appropriate proficiency in planning and carrying out investigations and analyzing and interpreting data. Students are also expected to use these practices to demonstrate understanding of the core ideas.	In this unit of study, students develop an understanding of what plants need to grow and how plants depend on animals for seed dispersal and pollination. Students also compare the diversity of life in different habitats. The crosscutting concepts of cause and effect and structure and function are called out as organizing concepts for these disciplinary core ideas. Students demonstrate grade-appropriate proficiency in planning and carrying out investigations and developing and using models. Students are also expected to use these practices to demonstrate understanding of the core ideas.
Learning Objectives	Plan and conduct an investigation collaboratively to produce data to describe and classify different kinds of materials by their observable properties. Analyze data from tests of an object or tool to determine if it works as intended. Make observations (firsthand or from media) to construct an evidence-based account of how an object made of a small set of pieces can be assembled. Construct an argument with evidence that some change caused by heating or cooling can be reversed and some cannot. Identify and argue from evidence that natural events have cause and effect relationships.	Use information from several sources to provide evidence that Earth events can occur quickly or slowly. Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land. Develop a model to represent the shapes and kinds of land and bodies of water in an area. Obtain information to identify where water is found on Earth and that it can be solid or liquid. 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	Plan and conduct an investigation collaboratively to produce data to describe and classify different kinds of materials by their observable properties. Analyze data from tests of an object or tool to determine if it works as intended. Make observations (firsthand or from media) to construct an evidence-based account of how an object made of a small set of pieces can be assembled. Construct an argument with evidence that some change caused by heating or cooling can be reversed and some cannot. Identify and argue from evidence that natural events have cause and effect relationships.	Plan and conduct an investigation to determine if plants need sunlight and water to grow. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants. Make observations of plants and animals to compare the diversity of life in different habitats. 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.



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		or tool. 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.		
Essential Questions	How can we identify where water is found on Earth and if it is solid or liquid? In what ways can you represent the shapes and kinds of land and bodies of water in an area? How can a map represent the shape of land and kind of water in a specified area? How does water move above, below, and on land? How does water change forms as it moves through the water cycle? How do rivers and streams shape the surface of the Earth? What role does the water cycle play in shaping the landscape?	Why do some Earth events happen very slowly or quickly? What are different solutions designed to prevent wind or water changing the shape of land? How can a map represent the shape of land and kind of water in a specified area? Where and why is water on Earth found in both solid and liquid form?	How can you describe and classify different kinds of materials? How can the properties of a material make them better or worse for a selected purpose? How can an object made of a small set of pieces be disassembled and made into a new object? How does heating and cooling a substance cause changes?	Why do some Earth events happen very slowly or quickly? What are different solutions designed to prevent wind or water changing the shape of land? How can a map represent the shape of land and kind of water in a specified area? How does the function of an animal in dispersing seeds or pollinating plants happen? How does the diversity of plants and animals compare among different habitats? What do plants need to live and grow? Why do some plants rely on animals for reproduction?
Standards	2-ESS2-1 2-ESS2-2 2-ESS2-3 K-2-ETS1-1 K-2-ETS1-3	2-ESS1-1 2-ESS2-1 2-ESS2-2 2-ESS2-3 K-2-ETS1-1 K-2-ETS1-2	2-PS1-1 2-PS1-2 2-PS1-3 2-PS1-4 K-2-ETS1-1 K-2-ETS1-3	2-LS2-1 2-LS2-2 2-LS4-1 K-LS1-1 K-2-ETS1-1
Education for Sustainability Standards	A Healthy And Sustainable Future Is Possible We Are All In This Together Healthy Systems Have Limits Recognize And Protect The Commons Live By The Natural Laws We Are All Responsible	A Healthy And Sustainable Future Is Possible We Are All In This Together Healthy Systems Have Limits Recognize And Protect The Commons Create Change At The Source Not The Symptom Think 1000 Years Live By The Natural Laws We Are All Responsible	A Healthy And Sustainable Future Is Possible We Are All In This Together Think 1000 Years Live By The Natural Laws We Are All Responsible	A Healthy And Sustainable Future Is Possible We Are All In This Together Healthy Systems Have Limits Recognize And Protect The Commons Create Change At The Source Not The Symptom Think 1000 Years Live By The Natural Laws We Are All Responsible
Assessment	Formative Check for Understanding Graphic Organizers & Guided Note Taking Directed Reading Cooperative Group Learning Homework Journal	Formative Check for Understanding Graphic Organizers & Guided Note Taking Directed Reading Cooperative Group Learning Homework Journal	Formative Check for Understanding Graphic Organizers & Guided Note Taking Directed Reading Cooperative Group Learning Homework Journal	Formative Check for Understanding Graphic Organizers & Guided Note Taking Directed Reading Cooperative Group Learning Homework Journal



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	Entries Summative Unit Exams Project Based Assessments	Entries Summative Unit Exams Project Based Assessments	Entries Summative Unit Exams Project Based Assessments	Entries Summative Unit Exams Project Based Assessments
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Long Branch Public Schools
Science Curriculum Mapping
Third Grade

Unit	1 Force Motion and Electricity	2 Life Cycles	3 Organisms and the Environment	4 Weather and Climate
Time Frame	Marking Period 3 - 45 days	Marking Period 2 - 45 days	Marking Period 3 - 45 days	Marking Period 4 - 45 days
Overview	<p>In this unit of study, students are able to determine the effects of balanced and unbalanced forces on the motion of an object. In the third-grade performance expectations, students are expected to demonstrate grade-appropriate proficiency by planning and carrying out investigations. Students will determine the effects of balanced and unbalanced forces on the motion of an object and the cause-and-effect relationships of electrical or magnetic interactions to define a simple design problem that can be solved with magnets. The crosscutting concept of cause and effect, and the interdependence of science, engineering, and technology, and the influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in asking questions and defining problems. Students are also expected to use these practices to demonstrate understanding of the core ideas.</p>	<p>In this unit of study, students acquire an understanding that organisms have different inherited traits and that the environment can also affect the traits that an organism develops. The crosscutting concepts of patterns and cause and effect are called out as organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in analyzing and interpreting data, constructing explanations, and designing solutions. Students develop an understanding of the similarities and differences in organisms' life cycles. In addition, students use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. The crosscutting concepts of patterns and cause and effect are called out as organizing concepts for these disciplinary core ideas. Students demonstrate grade appropriate proficiency in developing and using models and constructing explanations and designing solutions. Students are also expected to use these practices to demonstrate understanding of the core ideas.</p>	<p>In this unit of study, students develop an understanding of the idea that when the environment changes, some organisms survive and reproduce, some move to new locations, some move into the transformed environment, and some die. The crosscutting concepts of cause and effect and the interdependence of science, engineering, and technology are called out as organizing concepts for these disciplinary core ideas. Students develop an understanding of the types of organisms that lived long ago and also about the nature of their environments. Students develop an understanding of the idea that when the environment changes, some organisms survive and reproduce, some move to new locations, some move into the transformed environment, and some die. The crosscutting concepts of systems and system models; scale, proportion, and quantity; and the influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in asking questions and defining problems, analyzing and interpreting data, and engaging in argument from evidence. Students are also expected to use these practices to demonstrate understanding of the core ideas.</p>	<p>The performance expectations in third grade help students formulate answers to questions such as:</p> <ul style="list-style-type: none">• "What is typical weather in different parts of the world and during different times of the year?"• How can the impact of weather-related hazards be reduced? <p>Students are able to organize and use data to describe typical weather conditions expected during a particular season. By applying their understanding of weather-related hazards, students are able to make a claim about the merit of a design solution that reduces the impacts of such hazards. The crosscutting concepts of patterns; cause and effect; scale, proportion, and quantity; systems and system models; interdependence of science, engineering, and technology; and influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. In the third grade performance expectations, students are expected to demonstrate grade-appropriate proficiency in asking questions and defining problems; developing and using models, planning and carrying out investigations, analyzing and interpreting data, constructing explanations and designing solutions, engaging in argument from evidence, and obtaining, evaluating, and communicating information. Students are expected to use these practices to demonstrate understanding of the core ideas.</p>
Learning Objectives	<p>Observe moving objects and create a model that describes their motion</p> <p>Plan and conduct an investigation with motion and forces recording the time and distance traveled.</p> <p>Construct an explanation for how barriers and distance can vary the strength of a magnet.</p> <p>Analyze and interpret data of time to fall for objects of different masses from the same height at the same time.</p> <p>Construct an explanation for how friction affects the distance traveled by an object when sent into</p>	<p>Develop a model to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.</p> <p>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.</p> <p>Argue from evidence to support the explanation that traits can be influenced by the environment.</p> <p>Use evidence to construct an explanation for</p>	<p>Argue from evidence to support the explanation that traits can be influenced by the environment.</p> <p>Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.</p> <p>Different organisms vary in how they look and function because they have different inherited information.</p> <p>The environment also affects the traits that an</p>	<p>Develop a model using an analogy, to describe how weather and climate are related.</p> <p>Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.</p> <p>Obtain and combine information to describe climates in different regions of the world.</p> <p>Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.</p>



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	motion. Define a simple design problem that can be solved by applying scientific ideas about magnets.	how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.	organism develops.	
Essential Questions	How do equal and unequal forces on an object affect the object? How can we use our understanding about magnets be used to solve problems? How do scientists play soccer? Can we use patterns that we observed to predict the future? What are the relationships between electric and magnetic forces?	What kinds of traits are passed off from parents to offspring? What environmental factors might influence the traits of specific organisms? Do all living things have the same life cycle? What are the advantages of being different?	How are traits influenced by the environment? How do variations and characteristics provide advantages in nature? Why don't we see alligators in the arctic? What do fossils tell us about organisms and the environment in which they live?	How do seasonal changes affect weather conditions? How can I use data in tables and graphical displays to describe typical weather conditions? How does the global location of a region determine the climate? How do engineers design a solution to reduce the impact of a weather-related hazard?
Standards	3- PS2 - 1 3- PS2 - 2 3 - PS2- 3 3- PS2- 4	3. LS3. 1 - 3. LS3. 2- 3. LS1. 1 - 3. LS4. 2 -	3- LS4-1 3- LS4- 3 3-LS4-4	3. ESS. 2.1 - 3. ESS. 2. 1 - 3. ESS. 2. 2 - 3. ESS.3 - 1
Education for Sustainability Standards	A Healthy And Sustainable Future Is Possible We Are All In This Together Healthy Systems Have Limits Recognize And Protect The Commons Create Change At The Source Not The Symptom It All Begins With a Change In Thinking.	A Healthy And Sustainable Future Is Possible We Are All In This Together Diversity Makes Our Lives Possible Live By The Natural Laws We Are All Responsible	A Healthy And Sustainable Future Is Possible We Are All In This Together Diversity Makes Our Lives Possible Live By The Natural Laws We Are All Responsible	A Healthy And Sustainable Future Is Possible We Are All In This Together Create Change At The Source Not The Symptom Think 1000 Years Read The Feedback It All Begins With A Change In Thinking. Live By The Natural Laws We Are All Responsible
Assessment	Formative Check for Understanding Graphic Organizers & Guided Note Taking Directed Reading Cooperative Group Learning Homework Journal Entries Summative Unit Exams Project Based Assessments	Formative Check for Understanding Graphic Organizers & Guided Note Taking Directed Reading Cooperative Group Learning Homework Journal Entries Summative Unit Exams Project Based Assessments	Formative Check for Understanding Graphic Organizers & Guided Note Taking Directed Reading Cooperative Group Learning Homework Journal Entries Summative Unit Exams Project Based Assessments	Formative Check for Understanding Graphic Organizers & Guided Note Taking Directed Reading Cooperative Group Learning Homework Journal Entries Summative Unit Exams Project Based Assessments



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**Long Branch Public Schools
Science Curriculum Mapping
Fourth Grade Units 1-4**

Unit	Unit 1 Force and Motion	Unit 2 - Using Engineering Design with Force and Motion Systems	Unit 3 Transfer of Energy	Unit 4 Waves and Information
Time Frame	43 Days	22 Days	23 Days	23 Days
Overview	In this unit of study, students are able to use evidence to construct an explanation of the relationship between the speed of an object and the energy of that object, and are expected to develop an understanding that energy can be transferred from object to object through collisions. The crosscutting concept of <i>energy and matter</i> is called out as an organizing concept. Students are expected to demonstrate grade-appropriate proficiency in <i>asking questions, defining problems, and constructing explanations, and designing solutions</i> . Students are also	In this unit of study, students use evidence to construct an explanation of the relationship between the speed of an object and the energy of that object. Students develop an understanding that energy can be transferred from place to place by sound, light, heat, and electrical currents or from objects through collisions. They apply their understanding of energy to design, test, and refine a device that converts energy from one form to another. The crosscutting concepts of energy and matter and the influence of engineering, technology, and science on society and the	In this unit of study, fourth-grade students develop an understanding that energy can be transferred from place to place by sound, light, heat, and electrical currents. Students also obtain and combine information to describe that energy and fuels are derived from natural resources and that their uses affect the environment. The crosscutting concepts of cause and effect, energy and matter, and the interdependence of science, engineering, and technology, and influence of science, engineering, and technology on society and the natural world are called out as	this unit of study, students use a model of waves to describe patterns of waves in terms of amplitude and wavelength and to show that waves can cause objects to move. The crosscutting concepts of patterns; interdependence of science, engineering, and technology; and influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. Students demonstrate grade-appropriate proficiency in developing and using models, planning and carrying out investigations, and



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	expected to use these practices to demonstrate understanding of the core ideas.	natural world are called out as organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in asking questions and defining problems, planning and carrying out investigations, constructing explanations, and designing solutions. Students are also expected to use these practices to demonstrate their understanding of the core ideas.	organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade appropriate proficiency in planning and carrying out investigations and obtaining, evaluating, and communicating information. Students are also expected to use these practices to demonstrate understanding of the core ideas.	constructing explanations, and designing solutions. Students are also expected to use these practices to demonstrate their understanding of the core ideas.
Learning Objectives	Use evidence to construct an explanation relating the speed of an object to the energy of that object. Ask questions and predict outcomes about the changes in energy that occur when objects collide.	Apply scientific ideas to design, test, and refine a device that converts energy from one form to another	Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.	Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move. Generate and compare multiple solutions that use patterns to transfer information. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.
Essential Questions	<i>What is the relationship between the speed of an object and its energy?</i> <i>In what ways does energy change when objects collide?</i> <i>What happens to energy during a collision?</i> <i>What is motion?</i> <i>How do forces influence motion?</i> <i>How can the principles of motion be put to use?</i>	Why do we use the engineering design process to solve design challenges? How can scientific ideas be applied to design, test, and refine a device that converts energy from one form to another? What are variables? Criteria? Constraints?	How does energy move? From what natural resources are energy and fuels derived? In what ways does the human use of natural resources affect the environment? How are energy conversion and transfer related? How can humans use energy conversion and transfer to meet needs and wants? How is usable energy converted from resources in your area? What are some energy conversions that take place to create usable energy in a community?	What are waves and what causes them? What are the types of waves? How do waves help us communicate? How is information transferred from place to place? How does the amplitude and wavelength of waves affect how objects move? What happens when waves hit different objects? How are various types of waves similar and how are they different? How can waves transfer information? Is there a relationship between wavelength and frequency Are all waves the same?
Standards	4-PS3-1 4-PS3-3	4-PS3-4 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3	4-PS3-2 4-ESS3-1	4-PS4-1 4-PS4-3 3-5-EST-1-2 3-5-ETS1-2
Education for Sustainability	Healthy Systems Have Limits Recognize And Protect The Commons Reconcile Individual Rights With Collective Responsibilities	A Healthy And Sustainable Future Is Possible We Are All In This Together We Are All Responsible	A Healthy And Sustainable Future Is Possible We Are All In This Together Healthy Systems Have Limits Create Change At The Source Not The Symptom	A Healthy And Sustainable Future Is Possible We Are All In This Together We Are All Responsible



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Standards	Create Change At The Source Not The Symptom Live By The Natural Laws We Are All Responsible		Think 1000 Years We Are All Responsible	
Assessment	Formative Check for Understanding Graphic Organizers & Guided Note Taking Directed Reading Cooperative Group Learning Homework Journal Entries Summative Unit Exams Project Based Assessments	Formative Check for Understanding Graphic Organizers & Guided Note Taking Directed Reading Cooperative Group Learning Homework Journal Entries Summative Unit Exams Project Based Assessments	Formative Check for Understanding Graphic Organizers & Guided Note Taking Directed Reading Cooperative Group Learning Homework Journal Entries Summative Unit Exams Project Based Assessments	Formative Check for Understanding Graphic Organizers & Guided Note Taking Directed Reading Cooperative Group Learning Homework Journal Entries Summative Unit Exams Project Based Assessments

Long Branch Public Schools Science Curriculum Mapping Fourth Grade Units 5-8

Unit	Unit 5 - Structures and Functions	Unit 6 - How Organisms Process Information	Unit 7 - Earth Processes	Unit 8 - Weather and Erosion
Time Frame	22 Days	22 Days	22 Days	23 Days
Overview	In this unit of study, students develop an understanding that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. The crosscutting concepts of systems and system models are called out as organizing concepts for this disciplinary core idea. Students are expected to demonstrate grade-appropriate proficiency in engaging in argument from evidence. Students are also expected to use this practice to demonstrate understanding of the core idea.	In this unit of study, students are expected to develop an understanding that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. By developing a model, they describe that an object can be seen when light reflected from its surface enters the eye. The crosscutting concepts of cause and effect, systems and system models, and structure and function are called out as organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in	Is it possible to engineer ways to protect humans from natural Earth? In this unit of study, students apply their knowledge of natural Earth processes to generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans. In order to describe patterns of Earth's features, students analyze and interpret data from maps. The crosscutting concepts of patterns, cause and effect, and the influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas.	In this unit of study, students develop understandings of the effects of weathering and the rate of erosion by water, ice, wind, or vegetation. The crosscutting concepts of patterns and cause and effect are called out as organizing concepts. Students demonstrate grade-appropriate proficiency in planning and carrying out investigations and constructing explanations. Students are also expected to use these practices to demonstrate understanding of the core ideas.



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		developing and using models. Students are expected to use these practices to demonstrate understanding of the core ideas.	Students are expected to demonstrate grade-appropriate proficiency in planning and carrying out investigations, analyzing and interpreting data, and constructing explanations and designing solutions. Students are also expected to use these practices to demonstrate understanding of the core ideas.	
Learning Objectives	Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.	Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways. Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.	Analyze and interpret data from maps to describe patterns of Earth's features Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.	Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.
Essential Questions	What is structure? What is function? Are there any structures that have more than one function? How do internal and external parts of plants and animals help them to survive, grow, behave, and reproduce?	<i>What senses do animals have?</i> <i>How does an eye work?</i> <i>How do animals receive and process different types of information from their environment in order to respond appropriately?</i> <i>What happens when light from an object enters the eye?</i>	<i>What can maps tell us about the features of the world?</i> <i>In what ways can the impacts of natural Earth processes on humans be reduced?</i> <i>In what ways do human interactions impact Earth?</i> <i>How do natural hazards impact Earth?</i> <i>How can a step-by-step process help you design or improve a solution to a problem?</i>	<i>What do the shapes of landforms and rock formations tell us about the past?</i> <i>How can evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation be observed or measured?</i> <i>What causes changes to landscapes where we live?</i> <i>What is the difference between weather and climate?</i> <i>What are some ways to track weather patterns where you live?</i> <i>Why is it important to collect data about weather and climate?</i> <i>Are climates the same in other parts of the United States? Of the world?</i>
Standards	4-LS1-1	4-LS1-2 4-PS4-2	4-ESS2-2 4-ESS3-2 3-5-ETS1-2 3-5-ETS1-3	4-ESS2-1 4-ESS1-1
Education for Sustainability Standards	A Healthy And Sustainable Future Is Possible We Are All In This Together Healthy Systems Have Limits We Are All Responsible	Healthy Systems Have Limits Recognize And Protect The Commons Diversity Makes Our Lives Possible Create Change At The Source Not The Symptom We Are All Responsible	A Healthy And Sustainable Future Is Possible We Are All In This Together Healthy Systems Have Limits Recognize And Protect The Commons Reconcile Individual Rights With Collective	A Healthy And Sustainable Future Is Possible We Are All In This Together Healthy Systems Have Limits Recognize And Protect The Commons Diversity Makes Our Lives Possible



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			Responsibilities Think 1000 Years Read The Feedback It All Begins With A Change In Thinking. Live By The Natural Laws We Are All Responsible	Create Change At The Source Not The Symptom Live By The Natural Laws We Are All Responsible
Assessment	Formative Check for Understanding Graphic Organizers & Guided Note Taking Directed Reading Cooperative Group Learning Homework Journal Entries Summative Unit Exams Project Based Assessments	Formative Check for Understanding Graphic Organizers & Guided Note Taking Directed Reading Cooperative Group Learning Homework Journal Entries Summative Unit Exams Project Based Assessments	Formative Check for Understanding Graphic Organizers & Guided Note Taking Directed Reading Cooperative Group Learning Homework Journal Entries Summative Unit Exams Project Based Assessments	Formative Check for Understanding Graphic Organizers & Guided Note Taking Directed Reading Cooperative Group Learning Homework Journal Entries Summative Unit Exams Project Based Assessments

Long Branch Public Schools Science Curriculum Mapping Fifth Grade Units 1-4				
Unit	Unit 1 - Earth Systems and Water on Earth	Unit 2- Properties of Matter and Changes in Matter	Unit 3- Interaction within the Earth, Sun and Moon System	Unit 4- Energy and Matter in Ecosystems
Time Frame	35 Days	35 Days	35 Days	35 Days
Overview	In this unit of study, students use information and models to develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact, describe and graph the amounts of salt water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth, and obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment. Students will also describe and graph data	In this unit of study, students describe that matter is made of particles too small to be seen by developing a model. The crosscutting concept of scale, proportion, and quantity is called out as an organizing concept for these disciplinary core ideas. Students demonstrate grade-appropriate proficiency in developing and using models, planning and carrying out investigations, and use these practices to demonstrate understanding of the core ideas. Students will also develop an	In this unit of study, students develop an understanding of patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky. The crosscutting concepts of patterns, cause and effect, and scale, proportion, and quantity are called out as organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in analyzing and interpreting data and engaging in argument from evidence. Students are also expected to use these practices to	In this unit of study, students develop an understanding of the idea that plants get the materials they need for growth chiefly from air and water. Using models, students can describe the movement of matter among plants, animals, decomposers, and the environment, and they can explain that energy in animals' food was once energy from the sun. The crosscutting concepts of energy and matter and systems and system models are called out as organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency



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	to provide evidence about the distribution of water on Earth.	understanding of the idea that regardless of the type of change that matter undergoes, the total weight of matter is conserved. Students determine whether the mixing of two or more substances results in new substances. Students are expected to demonstrate grade-appropriate proficiency in planning and carrying out investigations and using mathematics and computational thinking. Students are expected to use these practices to demonstrate understanding of the core ideas.	demonstrate an understanding of the core ideas.	in developing and using models and engaging in argument from evidence. Students are also expected to use these practices to demonstrate understanding of the core ideas.
Learning Objectives	SWBAT explain how the geosphere, biosphere, hydrosphere, and/or atmosphere interact. SWBAT Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact. SWBAT explain that the atmosphere and hydrosphere interact by exchanging water through evaporation and precipitation. SWBAT explain the roles of water in Earth's Surface Processes. SWBAT Describe and graph the amounts of salt water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth. SWBAT Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.	SWBAT Develop a model to describe that matter is made of particles too small to be seen. SWBAT Make observations and measurements to identify materials based on their properties. SWBAT identify physical properties of matter and relate the three states of matter to the arrangement and movement of the particles. SWBAT describe the three states of matter SWBAT compare and contrast mixtures and solutions. SWBAT define chemical change, compare chemical changes and explain how matter is conserved when a chemical change occurs. SWBAT Conduct an investigation to determine whether the mixing of two or more substances results in new substances. SWBAT Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.	SWBAT identify that the sun is a star that appears larger and brighter than other stars because it is closer and that stars range greatly in their distance from Earth. SWBAT identify that The orbits of Earth around the sun and of the moon around Earth, together with the rotation of Earth about an axis between its North and South poles, cause observable patterns. These include day and night; daily changes in the length and direction of shadows; and different positions of the sun, moon, and stars at different times of the day, month, and year. SWBAT Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from the Earth. SWBAT Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky	SWBAT support an argument that plants get the materials they need for growth chiefly from air and water. SWBAT develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. SWBAT use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun. SWBAT understand food chains and food webs and know the roles of producers, consumers and decomposers in ecosystems. They will also be able to identify the flow of energy in and ecosystem? SWBAT observe the changes in a model pond, describe how changing ecosystems affect the organisms living there, and explain how changes can cause extinction. SWBAT observe how fertilizer affects plants, explain how people's actions can affect the environment, and describe ways to protect the environment. SWBAT use models to describe that energy in animals' food (used for body repair, growth, and motion and to maintain body warmth) was once energy from the sun. SWBAT develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. SWBAT Support an argument that plants get the materials they need for growth chiefly from air and water.
Essential Questions	How can you describe the atmosphere? What is the atmosphere made of? Why is the troposphere so important?	How can you explain how ALL matter has properties that can be observed, describe and measure?	What patterns do we notice when observing the sky? How does relative distance affect the brightness of a star?	What happens to the matter and energy that are part of each organism? How can matter be transported into, out of, and within systems?



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	<p>Where are the layers of the atmosphere located?</p> <p>How does the geosphere, biosphere, hydrosphere, and/or atmosphere interact?</p> <p>How does the Atmosphere and hydrosphere interact?</p> <p>Where is most of the available water located in the world?</p> <p>Where is most fresh water located?</p> <p>Where is some of the fresh water located?</p> <p>How do you think a glacier might shape the Earth's Surface?</p> <p>What type of landforms are formed from running water?</p> <p>How can you hypothesis about landforms that are formed and shaped by water?</p> <p>Do you think the Grand Canyon will get deeper? Explain your answer?</p> <p>What role does water play in Earth's Surface processes?</p> <p>How can you obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment?</p>	<p>How can you identify the physical properties of matter?</p> <p>How are the three states of matter related to the arrangement and movement of the particles within?</p> <p>What is the difference between solids, liquids and gases?</p> <p>How can you describe the three states of matter?</p> <p>How can you compare and contrast mixtures and solutions?</p> <p>How can you compare chemical changes?</p> <p>How can you explain how matter is conserved when a chemical change occurs?</p> <p>If I have a frozen water bottle that weighs 500 mg, how much will it weigh if the water melts?</p> <p>When matter changes, does its weight change?</p> <p>How can you explain that matter is made of particles too small to be seen?</p>	<p>What causes night and day?</p> <p>Why are some constellations only visible during certain times of the year?</p> <p>Why do shadows appear larger at certain times of the day, and shorter at other times?</p> <p>How can you support an argument that the gravitational force exerted by Earth on objects is directed down?</p> <p>How can you support an argument that the apparent brightness of the sun and stars is due to their relative distances from the Earth?</p> <p>How can you represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky?</p>	<p>How can you support an argument that plants get the materials they need for growth chiefly from air and water?</p> <p>How does matter move among plants, animals, decomposers, and the environment?</p> <p>How can energy be transferred in various ways and between objects.</p> <p>How can you describe that the energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun?</p> <p>How can energy move from the sun to plants and to animals?</p> <p>How can you understand food chains and food webs?</p> <p>What are the roles of producers, consumers and decomposers in ecosystems and how do they affect each other?</p> <p>How does energy flow through an ecosystem?</p> <p>Is soil a necessary component for plant growth? How can you prove why your answer is correct?</p> <p>Can plants conduct photosynthesis without the sun's energy? Defend your answer.</p>
Standards	5-ESS2-1 5-ESS2-2 5-ESS3-1	5-PS1-1 5-PS1-2 5-PS1-3 5-PS1-4	5-PS2-1 5-ESS1-1 5-ESS1-2	5-LS1-1 5-LS2-1 5-PS3-1
Education for Sustainability Standards	<p>A Healthy And Sustainable Future Is Possible</p> <p>We Are All In This Together</p> <p>Healthy Systems Have Limits</p> <p>Recognize And Protect The Commons</p> <p>Create Change At The Source Not The Symptom</p> <p>Think 1000 Years</p> <p>It All Begins With A Change In Thinking.</p> <p>Live By The Natural Laws</p> <p>We Are All Responsible</p>	<p>A Healthy And Sustainable Future Is Possible</p> <p>We Are All In This Together</p> <p>It All Begins With A Change In Thinking.</p> <p>Live By The Natural Laws</p> <p>We Are All Responsible</p>	<p>We Are All In This Together</p> <p>Healthy Systems Have Limits</p> <p>Create Change At The Source Not The Symptom</p> <p>Think 1000 Years</p> <p>It All Begins With A Change In Thinking.</p> <p>Live By The Natural Laws</p> <p>We Are All Responsible</p>	<p>A Healthy And Sustainable Future Is Possible</p> <p>We Are All In This Together</p> <p>Recognize And Protect The Commons</p> <p>Reconcile Individual Rights With Collective Responsibilities</p> <p>Diversity Makes Our Lives Possible</p> <p>Live By The Natural Laws</p> <p>We Are All Responsible</p>
Assessment	<p>Formative</p> <p>Check for Understanding</p> <p>Graphic Organizers & Guided Note</p> <p>Taking Directed Reading Cooperative</p> <p>Group Learning Homework Journal Entries</p> <p>Summative</p> <p>Unit Exams</p> <p>Project Based Assessments</p>	<p>Formative</p> <p>Check for Understanding</p> <p>Graphic Organizers & Guided Note</p> <p>Taking Directed Reading Cooperative</p> <p>Group Learning Homework Journal Entries</p> <p>Summative</p> <p>Unit Exams</p> <p>Project Based Assessments</p>	<p>Formative</p> <p>Check for Understanding</p> <p>Graphic Organizers & Guided Note</p> <p>Taking Directed Reading Cooperative</p> <p>Group Learning Homework Journal Entries</p> <p>Summative</p> <p>Unit Exams</p> <p>Project Based Assessments</p>	<p>Formative</p> <p>Check for Understanding</p> <p>Graphic Organizers & Guided Note</p> <p>Taking Directed Reading Cooperative</p> <p>Group Learning Homework Journal Entries</p> <p>Summative</p> <p>Unit Exams</p> <p>Project Based Assessments</p>



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