



# **Elementary Science Curriculum Map**

**Grades K-5**

**Grand Island Central Schools**

**Developed in Fall of 2022**

Inspire all students to achieve their highest potential by fostering academic excellence, personal growth, and social responsibility.

In 2018 the Board of Education of the Grand Island Central School District embarked upon a strategic planning process. Significant engagement and input was garnered from stakeholder groups representing parents, students, community leaders, graduates, teachers, professional support staff, the board and administration. Through electronic surveys some 6,000 comments were sorted and commonalities and “disconnects” identified. These served as the basis for discussions that occurred at each of the sixteen stakeholder workshops that followed.

The strengths, challenges and opportunities that were addressed at the workshops supported each stakeholder group in formulating their customized goals and strategy maps (although some commonalities exist with some goals for teaching professionals). Regardless, all stakeholder groups identified projects, issues and undertakings that they would like to complete over the next five years. These deliverables are summarized also, chronologically, in the Appendices.

Stakeholder goals addressed the following key areas:

- curriculum improvements;
- student performance;
- student well-being;
- operational efficiencies;
- communications improvements;
- seamlessness between buildings;
- capital improvements; and,
- customized professional development.

Embracing these, the Board and Administration defined their six goals for The District. These are underscored throughout this strategic plan and are the catalyst for the deliverables of the Board strategy map found on page 5.

- 1) To steward the District toward improved services and support that foster the wellness and behavioral health of students.
- 2) To foster a level of academic achievement emblematic of championship school districts.
- 3) To ensure the completion of all curriculum maps while fostering expansion of the STEAM curriculum
- 4) To review, revise and expand benchmark assessments as appropriate.
- 5) To make inter-building communications and practices as seamless as possible.
- 6) To continue to work with other District stakeholders to improve the District’s connectedness to the Grand Island and Western New York communities.

**Kindergarten**



**Grand Island Central School District Curriculum Map  
Kindergarten, Science, November 2022**

<b><u>Mystery Science</u></b>	<b><u>NYS Standards or Common Core Standards or Next Generation Science Standards or Science Key Ideas or Key Ideas or Power Standards or Other</u></b>	<b><u>Vocabulary</u></b>	<b><u>Essential Questions</u></b> (Big Idea Questions)	<b><u>Topical Questions</u></b> (May be written as "I can" statements)	<b><u>Essential Skills</u></b> (May be written as "I can" statements)	<ul style="list-style-type: none"> <li>● <b><u>Assessments</u></b></li> <li>● Tests</li> <li>● Quizzes</li> <li>● Performance</li> <li>● Labs</li> <li>● Essays</li> <li>● Authentic Assessments</li> </ul>	<b><u>Resources</u></b>
<b>Wild Weather</b> Lesson 1 Read-Along: How can you get ready for a big storm? (K-ESS3-2) Lesson 2: Have you ever watched a storm? (K-ESS2-1) Lesson 3: How many different kinds of weather are there? (K-ESS2-1)	K-ESS2-1: Weather Patterns **  K-ESS3-1: Environmental Relationships  K-ESS3-2: Forecasting Severe Weather	<ul style="list-style-type: none"> <li>● Weather</li> <li>● Severe</li> <li>● Preparation</li> <li>● Storms</li> <li>● Weather Conditions</li> <li>● Precipitation</li> <li>● Snowy</li> <li>● Sunny</li> <li>● Cloudy</li> <li>● Rainy</li> <li>● Windy</li> <li>● Dry</li> <li>● Hot</li> </ul>	L1: How can you get ready for a big storm?  L2: Have you ever watched a storm?  L3: How many different kinds of weather are there?	L1. Students explore the cause and effect relationship between weather tracking and storm preparation.  L2. Students explore the cause and effect relationship between weather tracking and storm preparation.  L3. Students observe weather patterns. They understand weather as a pattern in the natural world.	L1. Students observe plants when their needs are met and when their needs aren't met. They <b>analyze and interpret</b> these observations to understand that plants need water and sunlight. And, because they have needs, plants are living things.  L2. Students <b>carry out an investigation to</b>	L1: <u>Assessment:</u> Draw 2 ideas of how to be ready for a big storm  L2: <u>Assessment:</u> Draw a picture of your Breezy Buddy.  L3: <u>Assessment:</u> Draw your favorite kind of weather.  <a href="#">K-ESS2-1: Weather Patterns</a>  <a href="#">K-ESS3-2: Forecasting Severe Weather</a>	<ul style="list-style-type: none"> <li>● <b>Mystery Science</b></li> <li>● <b>Eco Island</b></li> <li>● <b>Pebble Go</b></li> <li>● <b>Brain Pop Jr.</b></li> <li>● <b>Scholastic News Magazine</b></li> <li>● <b>Weather Books</b></li> <li>● <b>Seasonal Books</b></li> <li>● <b>BookFlix Online Books</b></li> </ul>

		<ul style="list-style-type: none"> <li>● Cold</li> <li>● Mild</li> <li>● Partly Sunny</li> <li>● Fog</li> <li>● Land</li> <li>● Temperature</li> </ul>			<p>determine what plants need to grow. They grow radish seeds and <b>make observations</b> of their plants. Students <b>analyze and interpret</b> their observations of what the plants need, but also how they respond to light.</p> <p>L3. Students <b>obtain and evaluate information</b> by virtually keeping watch on a log and reporting about the living things that visit it. They <b>communicate information</b> by drawing a log and the animals that would use it as their habitat.</p>		<ul style="list-style-type: none"> <li>● National Geographic Videos</li> <li>● PBIS Videos</li> <li>● Buffalo Museum of Science</li> </ul>
<p><b>Circle of Seasons</b> Lesson 1 Read-Along: How do you know what to wear for the weather? (K-ESS2-1) Lesson 2:</p>	<p>K-ESS2-1: Weather Patterns ** K-ESS2-2: Environmental Change *</p>	<ul style="list-style-type: none"> <li>● Weather</li> <li>● Temperature</li> <li>● Local Weather</li> <li>● Patterns</li> <li>● Daily Patterns</li> </ul>	<p>L1: How do you know what to wear for the weather? L2: What will the weather be like on your birthday? L3: Why do birds lay eggs in the spring?</p>	<p>L1. Students observe weather patterns. They understand temperature changes throughout the day as a pattern in the natural world. L2 Students use their observations of the</p>	<p>L1: Students track the weather daily and <b>analyze the data</b> by collecting, recording, and sharing their observations. They act as weather reporters</p>	<p>L1: <u>Assessment:</u> Draw what Kevin wore at different parts of the day. L2: <u>Assessment:</u> Cut/Glue Seasons in Order L3: <u>Assessment:</u> Circle all the things a bird could use to build a nest in a given picture.</p>	<ul style="list-style-type: none"> <li>● Mystery Science</li> <li>● Eco Island</li> <li>● Pebble Go</li> <li>● Brain Pop Jr.</li> <li>● Scholastic News</li> </ul>

<p>What will the weather be like on your birthday? (K-ESS2-1) Lesson 3: Why do birds lay eggs in the spring? (K-ESS2-1, K-ESS2-2)</p>		<ul style="list-style-type: none"> <li>● Seasonal Patterns</li> <li>● Winter</li> <li>● Spring</li> <li>● Summer</li> <li>● Autumn</li> <li>● Fall</li> </ul>		<p>weather in each season to identify patterns. They determine the order of the seasons, and notice the pattern that all four seasons repeat each year.</p> <p>L3. Students observe how the structure of a bird nest enables them to function in keeping eggs and baby birds safe.</p>	<p>and <b>ask questions</b> based on observations of weather to find out more information about the natural world.</p> <p>L2: Students <b>obtain and evaluate information</b> in a series of unnamed drawings of each season. They use clues in the picture to <b>argue</b> for the season they think the picture represents. Next, they use these clues to sequence the seasons in the correct cycle.</p> <p>L3: Students <b>develop</b> a bird nest <b>model</b>. They use this model to <b>construct an argument</b> that birds use material around them to change their environment to keep their eggs and baby birds safe.</p>	<p><a href="#">K-ESS2-1: Weather Patterns</a></p> <p><a href="#">K-PS3-2: Shade Structure Design</a></p>	<p><b>Magazines</b></p> <ul style="list-style-type: none"> <li>● <b>Weather Books</b></li> <li>● <b>Seasonal Books</b></li> <li>● <b>BookFlix Online Books</b></li> <li>● <b>National Geographic Videos</b></li> <li>● <b>PBIS Videos</b></li> <li>● <b>Buffalo Museum of Science</b></li> </ul>
<p><b>Sunny Skies</b></p>	<p>K-ESS2-1: Weather</p>	<ul style="list-style-type: none"> <li>● Sun</li> <li>● Light</li> </ul>	<p>L1: How could you walk barefoot across hot</p>	<p>L1. Students consider the effect of direct</p>	<p>L1: Students make</p>	<p>L1: <u>Assessment</u>: Mark places on a picture where you could stay cool.</p>	<ul style="list-style-type: none"> <li>● <b>Mystery Science</b></li> </ul>

<p>Lesson 1 Read-Along: How could you walk barefoot across hot pavement without burning your feet? (K-PS3-1, K-PS3-2)</p> <p>Lesson 2: How could you warm up a frozen playground? (K-PS3-1, K-PS3-2, K-2-ETS1-2, K-2-ETS1-3)</p> <p>Lesson 3: Why does it get cold in winter? (K-PS3-1,)</p>	<p>Patterns **</p> <p>K-PS3-1: Sunlight Warms the Earth***</p> <p>K-PS3-2: Shade Structure Design</p> <p>K-PS1-1: Matter and Its Interactions</p>	<ul style="list-style-type: none"> <li>● Heat</li> <li>● Temperature</li> <li>● Shade</li> <li>● Sunlight</li> <li>● Reflect</li> <li>● Warmth</li> <li>● Warming</li> <li>● Earth's surface</li> <li>● Engineering</li> <li>● Investigation</li> <li>● Design</li> </ul>	<p>pavement without burning your feet?</p> <p>L2: How could you warm up a frozen playground?</p> <p>L3: Why does it get cold in winter?</p>	<p>sunlight on an area and how that causes surfaces to heat up. They also examine how shade structures can reduce the warming effect of the sun.</p> <p>L2. Students consider the cause and effect relationship between sunlight exposure and the temperature on the Earth's surface.</p> <p>L3. Students consider the effect of parking a car in a sunny area and how the heat of the sun can cause things to heat up and melt.</p>	<p>observations to define the problem that Farmer Josie's cows need shade in order to stay cool. Then, through a series of steps, they <b>design a solution</b> to build a shade structure that can reduce the warming effect of sunlight for the cows.</p> <p>L2: Students <b>define the problem</b> that Chill City, a valley town surrounded by mountains, does not get enough sunlight in the winter. Using various materials, they <b>carry out an investigation</b> to test which materials can redirect sunlight. Using this information, they <b>design a solution</b> to help bring sunlight to various locations</p>	<p>L2: <u>Assessment</u>: Draw what you could build to keep a person cool.</p> <p>L3: <u>Assessment</u>: Using a given picture, circle the things that were in the sun.</p> <p><a href="#">K-ESS2-1: Weather Patterns</a></p> <p><a href="#">K-PS3-1: Sunlight Warms the Earth</a></p>	<ul style="list-style-type: none"> <li>● <b>Eco Island Go</b></li> <li>● <b>Brain Pop Jr.</b></li> <li>● <b>Scholastic News Magazine</b></li> <li>● <b>Weather Books</b></li> <li>● <b>Seasonal Books</b></li> <li>● <b>BookFlix Online Books</b></li> <li>● <b>National Geographic Videos</b></li> <li>● <b>PBIS Videos</b></li> <li>● <b>Buffalo Museum of Science</b></li> </ul>
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					<p>in Chill City.</p> <p>L3: Students <b>construct an explanation</b> for why marshmallows melt in one car and not in another car. Then, to test this explanation, they <b>conduct a virtual investigation</b> to determine that the warmth of the Sun is the cause of the melted marshmallows.</p>		
<p><b>Force Olympics</b> Lesson 1: What's the biggest excavator? (Foundational for K-PS2-1, K-PS2-2) Lesson 2 Read-Along: Why do builders need so many big machines? (Foundational for K-PS2-1, K-PS2-2) Lesson 3: How can you knock</p>	<p>K-PS2-1: Pushes, Pulls, and Motion K-PS2-2: Motion Design Solution</p>	<ul style="list-style-type: none"> <li>● Work</li> <li>● Push</li> <li>● Pull</li> <li>● Force</li> <li>● Speed</li> <li>● Direction</li> <li>● Change</li> <li>● Weight</li> <li>● Engineer</li> <li>● Design</li> <li>● Invent</li> <li>● Tool(s)</li> <li>● Machine</li> <li>● Lift</li> <li>● Dig</li> <li>● Carry</li> </ul>	<p>L1: What's the biggest excavator?</p> <p>L2: Why do builders need so many big machines?</p> <p>L3: How can you knock down a wall made of concrete?</p>	<p>L1. Students consider the effects the machines can have when completing a task.</p> <p>L2. Students consider the cause and effect relationship between the movement of a machine and the work it can do.</p> <p>L3. Students analyze the effect of changing the strength and direction of a wrecking ball's push. They experiment with different heights to</p>	<p>L1: Students <b>obtain information</b> through observations of different machines. They use evidence from their observations to <b>argue</b> for their <b>explanation</b> of why machines make work easier. Students act out the "work words" of different machines.</p> <p>L2: Students <b>obtain information</b> through footage of different construction equipment being used in different ways. Student <b>communicate about the information</b> by discussing what each machine does using "work words".</p>	<p>L1: <u>Assessment</u>: Match machines that spin and machines to the work they do.</p> <p>L2: <u>Assessment</u>: Draw your favorite machine doing work.</p> <p>L3: <u>Assessment</u>: Draw a wrecking ball doing work</p> <p>L4: <u>Assessment</u>: Circle the word to describe each drawing.</p>	<ul style="list-style-type: none"> <li>● <b>Mystery Science</b></li> <li>● <b>Pebble Go</b></li> <li>● <b>Brain Pop Jr.</b></li> <li>● <b>Magnet Books</b></li> <li>● <b>Books on Big Machines</b></li> <li>● <b>Explore and More Museum</b></li> <li>● <b>Library STEM Materials</b></li> <li>● <b>Buffalo Museum</b></li> </ul>



<p>down a wall made of concrete? (K-PS2-1 and K-PS2-2) Lesson 4 Read-Along: How can you knock down the most bowling pins? (K-PS2-1) Lesson 5: How can we protect a mountain town from falling rocks? (K-PS2-2, K-2-ETS1-2, K-2-ETS1-3) Lesson 6 Read-Along: How could you invent a trap? (K-PS2-2, K-2-ETS1-2)</p>			<p>L4: How can you knock down the most bowling pins?</p> <p>L5: How can we protect a mountain town from falling rocks?</p> <p>L6: How could you invent a trap?</p>	<p>determine how the push, or force, is changed.</p> <p>L4. Students analyze the <b>cause and effect</b> relationship between the size of the force on an object and the direction or speed it goes.</p> <p>L5. Students analyze the cause and effect relationship between a force and an object's speed or direction.</p> <p>L6. Students consider the structure and function of existing materials and tools in order to create new uses for them in order to solve a problem.</p>	<p>L3: Students <b>carry out an investigation</b> to determine how far back they should pull their <b>model</b> wrecking ball to knock down a wall, but not the houses behind it. They <b>analyze the data</b> collected in their investigation to discuss how the force of the wrecking ball changes when you change the strength and direction of its push.</p> <p>L4: Students <b>carry out an investigation</b> by 'bowling' with solo cups (pins), a tennis ball (bowling ball), and pool noodles (bumpers). They explore the forces at work when one thing hits another, and how changing the size of the force affects the motion of an object.</p> <p>L5: Students use a <b>model</b> of a mountain town, Tiny Town, to <b>conduct an investigation</b> of how to protect the town from a falling boulder. They <b>design a solution</b> to safely guide a boulder down the hill so it doesn't hit the town and rolls into a dump truck. Using pushpin poles, students change the direction the boulder is rolling.</p> <p>L6: Students <b>design a solution</b> to help the</p>	<p>L5: <u>Assessment</u>: Draw something you push/pull.</p> <p>L6: <u>Assessment</u>: Create a machine chore invention.</p> <p><a href="#">K-PS2-1: Pushes, Pulls, and Motion</a></p> <p><a href="#">K-PS2-2: Motion Design Solution</a></p>	<p><b>of Science</b></p>
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					<p>boo characters solve a problem. Then, they <b>define a problem</b> by choosing a chore they don't like doing. Next, they <b>design solution</b> by sketching a machine that could help them. They compare their solutions with a partner.</p>		
<p><b>Animal Secrets</b> Lesson 1: Why do woodpeckers peck wood? (K-LS1-1) Lesson 2 Read-Along: Where do animals live? (K-ESS3-1) Lesson 3: How can you find animals in the woods? (K-LS1-1) Lesson 4 Read-Along: How do animals make their home in the forest? (K-ESS2-2)</p>	<p>K-LS1-1: Plant and Animal Needs *** K-ESS2-2: Environmental Change * K-ESS3-1: Environmental Relationships</p>	<ul style="list-style-type: none"> <li>● Living</li> <li>● Non-living</li> <li>● Animal</li> <li>● Need</li> <li>● Want</li> <li>● Food</li> <li>● Water</li> <li>● Shelter</li> <li>● Safety</li> <li>● Survive</li> <li>● Behavior</li> <li>● Habitat</li> <li>● Environment</li> <li>● Change</li> </ul>	<p>L1: Why do woodpeckers peck wood? L2: Where do animals live? L3: How can you find animals in the woods? L4: How do animals make their home in the forest?</p>	<p>L1. Students study animal behaviors to identify the pattern that all animals have behaviors that include seeking out food to survive. L2. Students identify the pattern that all living things live where their needs are met. They recognize that plants, animals, and their surroundings make up a system of parts that work together. L3. Students study animal behaviors to identify the pattern that all animals have the behavior seeking out safety to survive. L4. Students begin to recognize that plants, animals and their surroundings make up a system as parts that work together.</p>	<p>L1: Students <b>obtain information through observations</b> of different animal behaviors. They use evidence from their observations to <b>argue</b> for their <b>explanation</b> of why animals are acting in these ways. Students act out the behaviors of different animals. L2: Students <b>obtain information</b> through media about how different animal homes are built. They <b>communicate this information</b> in order to identify patterns in the natural world. L3: Students <b>obtain information through observations</b> of different animal behaviors. They use evidence from their observations to <b>argue</b> for why animals are acting in these ways. Students act out the behaviors of different animals. L4: Students take a nature walk to <b>carry</b></p>	<p>L1: <u>Assessment</u>: Draw an animal eating food. L2: <u>Assessment</u>: Draw an animal in its home. L3: <u>Assessment</u>: Draw an animal staying safe L4: <u>Assessment</u>: Draw an animal making its home in a tree. <a href="#">K-LS1-1: Plant and Animal Needs</a> <a href="#">K-ESS3-1: Environmental Relationships</a> <a href="#">K-ESS2-2: Environmental Change</a></p>	<ul style="list-style-type: none"> <li>● <b>Mystery Science</b></li> <li>● <b>Eco Island</b></li> <li>● <b>Pebble Go</b></li> <li>● <b>Brain Pop Jr.</b></li> <li>● <b>Scholastic News Magazine s</b></li> <li>● <b>Animal Books</b></li> <li>● <b>BookFlix Online Books</b></li> <li>● <b>National Geographic Videos</b></li> <li>● <b>PBIS Videos</b></li> <li>● <b>Buffalo of Science Museum</b></li> <li>● <b>Farm Field Trip</b></li> </ul>

					<p><b>out an investigation</b> exploring which types of animals live around them and what their homes are like. They <b>analyze and interpret data</b> by using their observations to describe the patterns they see.</p>		
<p><b>Plant Secrets</b> Lesson 1: Are plants alive? (K-LS1-1) Lesson 2: How do plants and trees grow? (K-LS1-1) Lesson 3 Read-Along: Why would you want an old log in your backyard? (K-ESS3-3)</p>	<p>K-LS1-1: Plant and Animal Needs *** K-ESS3-3: Environmental Solutions</p>	<ul style="list-style-type: none"> <li>● Living</li> <li>● Non-living</li> <li>● Plant</li> <li>● Need</li> <li>● Water</li> <li>● Sunlight</li> <li>● Soil</li> <li>● Environment</li> <li>● Adaptation</li> <li>● Life Cycle</li> <li>● Flower</li> <li>● Stem</li> <li>● Leaf / Leaves</li> <li>● Roots</li> <li>● Seeds</li> <li>● Reproduce</li> <li>● Photosynthesis</li> <li>● Chlorophyll</li> <li>● Growth</li> </ul>	<p>L1: Are plants alive?</p> <p>L2: How do plants and trees grow?</p> <p>L3: Why would you want an old log in your backyard?</p>	<p>L2. Students study plant growth to identify the pattern that all plants need water. They also observe the pattern that plants lean toward the light.</p> <p>L3. Students consider the cause and effect relationship between the changes people make to their environment and the impact it has on other living things that share their habitat.</p>	<p>L1: Students observe plants when their needs are met and when their needs aren't met. They <b>analyze and interpret</b> these observations to understand that plants need water and sunlight. And, because they have needs, plants are living things.</p> <p>L2: Students <b>carry out an investigation</b> to determine what plants need to grow. They grow radish seeds and <b>make observations</b> of their plants. Students <b>analyze and interpret</b> their observations of what the plants need, but also how they respond to light.</p> <p>L3: Students <b>obtain and evaluate information</b> by virtually keeping watch on a log and reporting about the living things that visit it. They <b>communicate information</b> by drawing a log and the animals that would use it as their habitat.</p>	<p>L2: <u>Assessment</u>: Draw what seeds need to grow.</p> <p>L3: <u>Assessment</u>: Draw an animal that would visit an old log.</p> <p><a href="#">K-LS1-1: Plant and Animal Needs</a></p> <p><a href="#">K-ESS3-3: Environmental Solutions</a></p>	<ul style="list-style-type: none"> <li>● <b>Mystery Science</b></li> <li>● <b>Eco Island</b></li> <li>● <b>Pebble Go</b></li> <li>● <b>Brain Pop Jr.</b></li> <li>● <b>Scholastic News Magazine</b></li> <li>● <b>Plant Books</b></li> <li>● <b>BookFlix Online Books</b></li> <li>● <b>National Geographic Videos</b></li> <li>● <b>PBIS Videos</b></li> </ul>

# First Grade



**Grand Island Central School District Curriculum Map  
1st Grade, Science, Nov. 8, 2022**

<u>Units of Study</u>	<u>NYSSLS Standards or Next Generation Science Standards</u>	<u>Vocabulary</u>	<u>Essential Questions</u> (Big Idea Questions)	<u>Topical Questions</u> (May be written as “I can” statements)	<u>Essential Skills</u> (May be written as “I can” statements)	<u>Assessments</u>	<u>Resources</u>
<b>(Trimester 3)</b>  <b>Structure, Function and</b>	1-LS1-1. Use materials to design a solution to a human problem by mimicking how plants and/or animals use their	mimicking offspring adult	<b>Anchor Phenomenon</b>  How do internal and external structures support the	<b>Animal Superpowers</b>  Lesson 1: How can you help a lost baby animal find its parents? (1-LS3-1)	1-LS1-1 I can design a solution (useful product) to a human	<u>1-LS1-1: Biomimicry Design Solution</u>	1-LS1-1: Biomimicry Design Solution

<p><b>Information Processing:</b></p> <p>(Animal and Plants SuperPowers: Mystery Science titles)</p>	<p>external parts to help them survive, grow, and meet their needs.* [Clarification Statement: Examples of human problems that can be solved by mimicking plant or animal solutions could include designing clothing or equipment to protect bicyclists by mimicking turtle shells, acorn shells, and animal scales; stabilizing structures by mimicking animal tails and roots on plants; keeping out intruders by mimicking thorns on branches and animal quills; and, detecting intruders by mimicking eyes and ears.]</p> <p>LS1.A: Structure and Function All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1) LS1.B: Growth and Development of Organisms Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive. (1-LS1-2) LS1.D: Information Processing</p>	<p>organisms</p> <p>structure(s)</p> <p>function(s)</p> <p>heredity</p> <p>growth</p> <p>survival</p> <p>survive</p> <p>similar</p> <p>traits</p> <p>communicate</p> <p>protect</p> <p>needs</p>	<p>survival, growth, behavior, and reproduction of plants and animals?</p> <p>How do animals receive, process, and respond to different types of information?</p> <p>What do plants and animals have in common?</p> <p>How is the survival of animals and plants similar and different?</p> <p>How do animals process the world around them?</p>	<p>Lesson 2: Why do birds have beaks? (1-LS1-1) Lesson 3 Read-Along: Why do baby ducks follow their mother? (1-LS1-2) Lesson 4: Why are polar bears white? (1-LS1-1) Lesson 5 Read-Along: Why do family members look alike? (1-LS3-1)</p> <p><b>Plant Superpowers</b> Lesson 1: What will a baby plant look like when it grows up? (1-LS3-1) Lesson 2: Why don't trees blow down in the the wind? (1-LS1-1, K-2-ETS1-2, K-2-ETS1-3) Lesson 3 Read-Along: What do sunflowers do when you're not looking? (1-LS1-1)</p>	<p>problem that mimics plant or animal parts to help them survive, grow and meet their needs. Example: bike helmet mimicking a turtles shell</p>	<p><a href="#">1-LS1-2: Behavior - Parents and</a></p>	<p>Pebble GO Blast Off Series (Sidway Library)</p>
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	<p>Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs. (1-LS1-1)</p> <p>1-LS1-2. Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive. [Clarification Statement: Examples of patterns of behaviors could include the signals that offspring make (such as crying, cheeping, and other vocalizations) and the responses of the parents (such as feeding, comforting, and protecting the offspring).]</p> <p>1-LS3-1. Make observations to construct an evidence-based account that some young plants and</p>				<p>1-LS1-2 I can read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive: study about why babies cry, and how their parents respond to it.</p> <p>1-LS3-1 I can make observations to construct an evidence-based account that young plants and animals are like, but not exactly like their parents: show that in some ways</p>	<p><a href="#">Offspring</a></p> <p><a href="#">1-LS3-1: Plant and Animal Structures - Parents and Offspring</a></p>	<p>1-LS1-2: Behavior - Parents and Offspring</p> <p>1-LS3-1: Plant and Animal Structures - Parents and Offspring</p>
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	<p>animals are similar to, but not exactly like, their parents.          [Clarification Statement: Examples of patterns could include features plants or animals share. Examples of observations could include leaves from the same kind of plant are the same shape but can differ in size; and, a particular breed of dog looks like its parents but is not exactly the same.]          [Assessment Boundary: Assessment does not include inheritance or animals that undergo metamorphosis or hybrids.]</p> <p>LS3.A: Inheritance of Traits (NYSED) Some young animals are similar to, but not exactly, like their parents. Some young plants are also similar to, but not exactly, like their parents. (1-LS3-1)          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. (1-LS3-1)</p>				<p>kids are like their parents, and in some ways they are different.</p>		
<b>(Trimester 1)</b>	1-ESS1-1. Use observations of the Sun, moon, and	observe patterns	<b>Anchor Phenomenon</b> What objects are	<b>Sun &amp; Shadows</b> Lesson 1: Could a statue's shadow move?	1-ESS1-1 I can describe the patterns	<a href="#">1-ESS1-1: Sun, Moon, and Star Patterns</a>	1-ESS1-1: Sun, Moon,



<p><b>Space Systems: Patterns and Cycles</b></p> <p>(Sun &amp; Shadows- Moon &amp; Stars: Mystery Science Titles)</p>	<p>stars to describe patterns that can be predicted.</p> <p>[Clarification Statement: Examples of patterns could include that the Sun and moon appear to rise along the eastern horizon, move in a predictable pathway across the sky, and set along the western horizon; and stars other than our Sun are visible at night depending on weather and other conditions such as light pollution but not visible during the day.]</p> <p>[Assessment Boundary: Assessment of star patterns is limited to stars being seen at night and not during the day.]</p> <p><b>ESS1.A: The Universe and its Stars</b> Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted. (1- ESS1-1)</p> <p><b>ESS1.B: Earth and the Solar System</b> Seasonal patterns of sunrise and sunset can be observed, described, and predicted. (1-ESS1-2)</p> <p>1-ESS1-2. Make observations at different times of</p>	<p>predictable</p> <p>horizon</p> <p>light pollution</p>	<p>in the sky and how do they seem to move?</p> <p>How can we describe and predict patterns of objects in the sky?</p> <p>How are shadows made?</p>	<p>(1-ESS1-1) Lesson 2 Read-Along: What does your shadow do when you're not looking? (1-ESS1-1) Lesson 3: How can the sun help you if you're lost? (1-ESS1-1) Lesson 4 Read-Along: Why do you have to go to bed early in the summer? (1-ESS1-2) <b>Moon &amp; Stars</b> Lesson 1: When can you see the full moon? (1-ESS1-1) Lesson 2: Why do the stars come out at night? (1-ESS1-1) Lesson 3 Read-Along: How can stars help you if you get lost? (1-ESS1-1)</p>	<p>of the sun, moon, and stars.</p> <p>I can use observations of the sun, moon and stars to describe patterns that can be predicted and then illustrate them.</p> <p>1-ESS1-2 I can make observations at different times of the year to relate the amount of daylight to the time of year.</p>	<p><a href="#">1-ESS1-2: Seasonal Sunlight</a></p>	<p>and Star Patterns</p> <p>Blast Off Series (Sidway Library)</p> <p>1-ESS1-2: Seasonal Sunlight</p>
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	<p>year to relate the amount of daylight to the time of year.          [Clarification Statement: Emphasis is on relative comparisons of the amount of daylight in the winter to the amount in the spring or fall.]          [Assessment Boundary: Assessment is limited to relative amounts of daylight, not quantifying the hours or time of daylight.]</p>				<p>I can compare the time of the year with the number of hours of daylight.</p>		
<p><b>(Trimester 2)          Waves:          Light and Sound</b></p> <p>(Lights and Sounds: Mystery Science Title)</p>	<p>1-PS4-1. Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.          [Clarification Statement: Examples of vibrating materials that make sound could include tuning forks and plucking a stretched string. Examples of how sound can make matter vibrate could include holding a piece of paper near a speaker making sound and holding an object near a vibrating tuning fork.]  <b>PS4.A: Wave Properties Sound can make matter vibrate, and vibrating matter can make sound. (1-PS4-1)</b></p>	<p>vibrate          illuminate          transparent          translucent          opaque          reflective          communication</p>	<p><b>Anchor Phenomenon</b>          What happens when materials vibrate?          What makes sound? (people, animals, nonliving things?)          Can light pass through all matter?          How can you stop or change sound?          How can you make things vibrate?          What role does sound and light</p>	<p><b>Lights &amp; Sounds</b>          Lesson 1: How do they make silly sounds in cartoons? (1-PS4-1)          Lesson 2 Read-Along: Where do sounds come from? (1-PS4-1)          Lesson 3: What if there were no windows? (1-PS4-3)          Lesson 4 Read-Along: Can you see in the dark? (1-PS4-2)          Lesson 5: How could you send a secret message to someone far away? (1-PS4-4, K-2-ETS1-2)          Lesson 6 Read-Along: How do boats find their way in the fog? (1-PS4-4)</p>	<p>1-PS4-1          I can plan and conduct investigations to show that vibrating materials can make sound and that sound can make materials vibrate.          I can create experiments to show that sound is a vibration, and vibrations can make sounds.</p>	<p><a href="#">1-PS4-1: Sound and Vibrating Materials</a>  <a href="#">1-PS4-2: Illumination and</a></p>	<p>1-PS4-1: Sound and Vibrating Materials          Blast Off Series (Sidway Library)</p>

	<p>1-PS4-2. Make observations (firsthand or from media) to construct an evidence-based account that objects can be seen only when illuminated.  [Clarification Statement: Examples of observations could include those made in a completely dark room, a pinhole box, and a video of a cave explorer with a flashlight. Illumination could be from an external light source or by an object giving off its own light.]  PS4.B: Electromagnetic Radiation Objects can be seen if light is available to illuminate them or if they give off their own light.  (1-PS4-2) Some materials allow light to pass through them, others allow only some light through and others block all the light and create a dark shadow on any surface beyond them, where the light cannot reach. Mirrors can be used to redirect a light beam.  (Boundary: The idea that light travels from place to place is</p>		<p>play in people's lives?</p> <p>How can we send sound/light over a distance?</p> <p>What causes sound and how can we produce loud and soft sounds?</p> <p>How can we use light to communicate?</p>		<p>I can make observations to construct an evidence-based account that objects can be seen only when illuminated.</p> <p>I can argue/prove that we only see objects if a light shines on them or from them.</p> <p>1-PS4-3 I can plan and conduct an investigation to determine the effect of placing</p>	<p><a href="#">Darkness</a></p> <p><a href="#">1-PS4-3: Light and Materials</a></p>	<p>1-PS4-2: Illumination and Darkness</p> <p>1-PS4-3: Light and Materials</p>
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	<p>developed through experiences with light sources, mirrors, and shadows, but no attempt is made to discuss the speed of light.) (1- PS4-3)</p> <p>1-PS4-3. Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light. [Clarification Statement: Examples of materials could include those that are transparent (such as clear plastic), translucent (such as wax paper), opaque (such as cardboard), and reflective (such as a mirror).] [Assessment Boundary: Assessment does not include the speed of light.]</p> <p>1-PS4-4. Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over</p>				<p>objects made with different materials in the path of a beam of light.</p> <p>I can research what happens to a light beam when I shine it on or through different materials.</p> <p>1-PS4-4 I can use tools and materials to design and build a device that uses light or sound to solve the problem of communication over distance.</p> <p>I can build a sound or light machine that sends messages.</p>	<p><a href="#">1-PS4-4: Communication Device Design</a></p>	<p>1-PS4-4: Communication Device Design</p>
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	<p>a distance.*  [Clarification Statement:  Examples of devices could include a light source to send signals, paper cup and string "telephones," and a pattern of drum beats.]  [Assessment Boundary:  Assessment does not include technological details for how communication devices work.]</p> <p>PS4.C: Information Technologies and Instrumentation People also use a variety of devices to communicate (send and receive information) over long distances. (1- PS4-4)</p>					
<p><b>K-2 Engineering Design</b>  <b>** This standard is implemented through all units during the year.**</b></p>	<p>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.  ETS1.A: Defining and Delimiting Engineering Problems A situation that people want to change or create can be approached as a problem to be solved</p>	<p>create  problem solve  design  observations  sketch &amp; draw  investigate  evaluate  revise</p>			<p>K-2-ETS1-1  I can ask questions, make observations, and gather information about something people want to change to define a simple problem that can be solved through a new or improved object or tool.</p>	

	<p>through engineering. (K-2- ETS1-1) Asking questions, making observations, and gathering information are helpful in thinking about problems. (K-2-ETS1-1) Before beginning to design a solution, it is important to clearly understand the problem. (K-2-ETS1-1) ETS1.B: Developing Possible Solutions Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people. (K-2-ETS1-2) ETS1.C: Optimizing the Design Solution Because there is always more than one possible solution to a problem, it is useful to compare and test designs. (K-2-ETS1-3)</p> <p>K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</p>	<p>question</p> <p>define</p> <p>develop</p> <p>tool</p> <p>model</p> <p>function</p> <p>analyze</p> <p>data</p> <p>compare</p> <p>perform</p>			<p>I can make a new tool, or improve an old tool to solve a simple problem (like cracking an egg).</p> <p>K-2-ETS1-2 I can develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function to solve a given problem.</p> <p>I can draw accurate</p>		
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	<p>K-2-ETS1-3. Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</p>				<p>pictures of different tools doing their jobs correctly.</p> <p>K-2-ETS1-3 I can analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</p> <p>I can compare two tools and tell you which one will do a better job.</p>		

# **Second Grade**







**Grand Island Central School District Curriculum Map  
2nd Grade, Science, November 2022**

<u>Units of Study</u>	<u>NYS Standards or Common Core Standards or Next Generation Science Standards or Science Key Ideas or SS Frameworks Key Ideas or Power Standards or Other</u>	<u>Vocabulary</u>	<u>Essential Questions</u> (Big Idea Questions)	<u>Topical Questions</u>	<u>Essential Skills</u> (SWBAT)	<u>Assessments</u>	<u>Resources</u>
Animal Adventures	Anchor: 2-LS4-1  Lesson 1: 2-LS4-1  Lesson 2: 2-LS4-1  Lesson 3: 2-LS4-1  Lesson 4: 2-LS4-1 K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3  Performance Task: 2-LS4-1	patterns characteristics habitats species prototype biodiversity mammals invertebrates amphibians reptiles	Can I classify animals by their characteristics and analyze the biodiversity of different habitats?	<b>Anchor Phenomenon:</b> Life Underground  <b>Lesson 1:</b> How many different kinds of animals are there?  <b>Lesson 2:</b> Why would a wild animal travel outside its habitat?  <b>Lesson 3:</b> Why do species of frogs make different sounds?  <b>Lesson 4:</b> How are bird feeders	Students will identify patterns.  Students will demonstrate understanding of cause and effect relationships.  Students will make observations and gather information.  Students will build a prototype after collecting	Formative - Discussion Hands-on Activity  Summative-Exit Tickets for each lesson  <u>Unit Assessment</u>	Mystery Science materials list  <a href="#">Animal Identity video</a>  <a href="#">BrainPop Jr. Classifying Animals video</a>  TPT: Sort and Classify Activity

				<p>designed to meet the needs of specific birds?</p> <p><b>Performance Task:</b> Where else do bats live?</p>	data and making observations.		<p><a href="#">PebbleGo</a></p> <p><a href="#">BookFlix</a> <a href="#">Life in a Pond</a></p>
Material Magic	<p>Anchor: 2-PS1-1 2-PS1-2 2-PS1-3</p> <p>Lesson 1: 2-PS1-1 2-PS1-2 K-2ETS1-1 K-2ETS1-2 K-2ETS1-3</p> <p>Lesson 2: 2-PS1-1 2-PS1-2</p> <p>Lesson 3: 2PS1-1 2PS1-2 2PS1-4</p> <p>Lesson 4: 2PS1-1 2PS1-2 K-2ETS1-1 K-2ETS1-2</p> <p>Lesson 5: 2-PS1-3</p> <p>Lesson 6:</p>	<p>hot heat cold rigid solid liquid matter energy flexible material insulating properties transparent</p>	<p>How do we describe and classify different types of materials by properties like hardness, flexibility, and absorbency?</p> <p>How do we investigate how properties are useful in meeting basic human needs (such as clothing and cooking)?</p> <p>How does heating and cooling affect the properties of materials?</p>	<p><b>Anchor Phenomenon:</b> Melting Metal</p> <p><b>Lesson 1:</b> Why do we wear clothes?</p> <p><b>Lesson 2:</b> Can you really fry an egg on a hot sidewalk?</p> <p><b>Lesson 3:</b> Why are so many toys made out of plastic?</p> <p><b>Lesson 4:</b> What materials might be invented in the future?</p> <p><b>Lesson 5:</b> Could you build a house out of paper?</p> <p><b>Lesson 6:</b> How do you build a city out of mud?</p> <p><b>Performance Task:</b> How do we recycle metal?</p>	<p>Students will generate observations and questions about the phenomenon and create an initial conceptual model to explain the phenomenon</p> <p>Students will demonstrate my knowledge of various materials to create clothing such as texture, flexibility, and absorbency to design and build a hat that protects from the sun</p>	<p>Formative Assessment- <a href="#">Unit Assessment</a></p> <p>Discussion Hands-on Activity</p> <p>Summative- Exit Tickets for each lesson</p>	<p>Mystery Science Materials.</p> <p><a href="#">Physical and Chemical Changes of Matter Video</a></p> <p><a href="#">Changing states of matter video</a></p> <p><a href="#">Solids Liquids and Gas Video</a></p>

	2-PS1-1 2-PS1-2  Performance Task: 2PS1-4						
Work of Water	Anchor: 2-ESS2-1, K-2-ETS1-1, K-2-ETS1-2, K-2-ETS1-3  Lesson 1: 2-ESS2-2  Lesson 2: 2- ESS2-2  Lesson 3: 2-ESS2-1  Lesson 4: 2- ESS2-1 K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3  Performance Task: 2- ESS2-1 K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3	erosion rivers lakes oceans flood	What is erosion and why does it occur?	<b>Anchor Phenomenon:</b> Strange River - Why do these two rivers look so different?  <b>Lesson 1:</b> If you floated down a river, where would you end up?  <b>Lesson 2:</b> Why is there sand at the beach?  <b>Lesson 3:</b> Where do flash floods happen?  <b>Lesson 4:</b> What's strong enough to make a canyon?  <b>Lesson 5:</b> How can we stop a landslide?  <b>Performance Task:</b> How long is the shortest river?	Students will identify patterns about where rivers start and end on earth's surface.  Students make sense of the cause and effect of rocks tumbling in a river (cause) and turning into sand (effect).  Students will explain why flash floods are more or less likely in different regions.  Students will start to explore that changes to the earth's surface can happen slowly through the	Formative-Classroom discussion, teacher observation  Summative- Exit tickets for each lesson, completion of worksheet during lesson  <a href="#">Work of Water Summative Assessment</a>	Mystery Science Materials  <a href="#">epic text</a> from getepic  <a href="#">BrainPop Jr. video- Slow Land Changes</a>

					process of erosion.		
Plant Adventures	<p>Anchor: 2-LS4-1 K-2-ETS1-1 K-2-ETS1-2 K-2-ETS-3</p> <p>Lesson 1: 2-LS2-1</p> <p>Lesson 2: 2-LS4-1</p> <p>Lesson 3: 2-LS4-1</p> <p>Lesson 4: 2-LS4-1 K-2-ETS1-1 K-2-ETS1-2 K-2-ETS-3</p> <p>Performance Task: 2-LS4-1 K-2-ETS1-1 K-2-ETS1-2 K-2-ETS-3</p>	water light pollination plant	What does a plant need to survive?	<p><b>Anchor Phenomenon:</b> Superbloom</p> <p><b>Lesson 1:</b> How did a tree travel halfway around the world?</p> <p><b>Lesson 2:</b> Could a plant survive without light?</p> <p><b>Lesson 3:</b> Why do trees grow so tall?</p> <p><b>Lesson 4:</b> Should you water a cactus?</p> <p><b>Lesson 5:</b> Where do plants grow best?</p> <p><b>Performance Task:</b> How can anything live in Death Valley?</p>	<p>Students will identify the cause and effect relationship between a plant's needs and the habitat it survives best in.</p> <p>Students will examine the effect sunlight has on plant growth.</p> <p>Students will analyze the role of the leaves in helping the plant capture sunlight.</p>	<p>Formative - Discussion Hands-on Activity</p> <p>Summative-Exit Tickets for each lesson</p> <p><a href="#">Plant Adventures Summative Assessment</a></p>	<p>BrainPop Jr. <a href="#">Plant Life Cycle</a> &amp; <a href="#">Plant Adaptations</a> videos</p> <p>Magic School Bus "Goes to Seed", "Get's Planted"</p> <p><a href="#">Seeds in Flight</a></p> <p><a href="#">Berry Delicious Video</a></p> <p><a href="#">Private Life of Plants</a></p> <p><a href="#">Planting Flowers Video</a></p> <p><a href="#">A Forest Year: Time-lapse Video</a></p> <p> water...</p> <p> The ...</p>

# **Third Grade**



Grand Island Central School District Curriculum Map  
Grade 3, Science , November 2022

<p><b><u>Mystery Science Units</u></b></p>	<p><b><u>NYS Standards or Common Core Standards or Next Generation Science Standards or Science Key Ideas or SS Frameworks Key Ideas or Power Standards or Other</u></b></p>	<p><b><u>Vocabulary</u></b></p>	<p><b><u>Essential Questions</u></b> (Big Idea Questions) 1-2 Questions for entire unit</p>	<p><b><u>Topical Questions</u></b> (May be written as “I can” statements)  Written as question</p>	<p><b><u>Essential Skills</u></b> (May be written as “I can” statements)  What are the kids demonstrating/performing? Students will be able to...</p>	<p><b><u>Assessments</u></b></p> <ul style="list-style-type: none"> <li>• Tests</li> <li>• Quizzes</li> <li>• Performance</li> <li>• Labs</li> <li>• Essays</li> <li>• Authentic Assessments</li> </ul>	<p><b><u>Resources</u></b></p> <ul style="list-style-type: none"> <li>• Texts</li> <li>• Tech Integration</li> <li>• Materials</li> <li>• Articles</li> <li>• Links</li> </ul>
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<p><u>Stormy Skies (7 weeks)</u></p>	<p><u>Weather &amp; Climate</u></p> <ul style="list-style-type: none"> <li>• 3-ESS2-1: Seasonal Weather Conditions</li> <li>• 3-ESS2-2: World Climates</li> <li>• 3-ESS3-1: Weather-Related Hazard Solution</li> </ul>	<p>solid liquid gas fog evaporatio n condensati on precipitati on thermomet er data pattern climate rain gauge characteri stics claim natural hazard</p>	<p><b>What is typical weather in different parts of the world and during different times of the year?</b></p>	<p><b>Lesson 1:</b> Where do clouds come from? 3-ESS2-1</p> <p><b>Lesson 2:</b> How can we predict when it's going to storm? 3-ESS2-1</p>	<p><b>Lesson 1:</b> SWBAT: Examine clues to see how clouds look and feel to discover what they're made of and how they form.</p> <p>SWBAT: Conduct an experiment to observe evaporation firsthand.</p> <p><b>Lesson 2:</b> SWBAT: Make predictions about the weather by observing clouds and their changes.</p> <p>SWBAT: Conduct an experiment to identify different types of clouds.</p> <p>SWBAT: Observe and evaluate wind direction to determine the direction of a storm.</p>	<p><a href="#">Lesson 1 Assessment</a> <a href="#">Lesson 2 Assessment</a> <a href="#">Lesson 4 Assessment</a> <a href="#">Lesson 5 Assessment</a> <a href="#">Unit Assessment</a></p> <p><b>CLOUD IN A BOTTLE INVESTIGATION</b></p>	<p><a href="#">Let's Notice Forms of Water</a></p> <p><a href="#">Clouds</a></p> <p>What's the Big Idea about Water</p> <p>Whys of Weather: Clouds Water takes 3 forms Weather: The Water Cycle <a href="#">The Water Cycle</a> Whys of Weather: Rain Summer vacation The Big Storm Snowy Town. Summer Vacation Winter Weather in the United States. The Job of a Meteorologist</p>
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				<p><b>Lesson 3:</b> How do seasonal weather patterns affect where people live? 3-ESS2-1</p> <p><b>Lesson 4:</b> Why are some places always hot? 3-ESS2-1 3-ESS2-2</p> <p><b>Lesson 5:</b> How can humans build and protect structures against natural hazards? 3-ESS3-1 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3</p> <p><b>Performance Task</b> <i>*must do</i> 3-ESS3-3</p>	<p><b>Lesson 3:</b> SWBAT: Explore weather patterns to make predictions about future weather.</p> <p>SWBAT: Analyze data to compare and evaluate data to predict future weather patterns.</p> <p><b>Lesson 4:</b> SWBAT: Explain the concept of climate and explore the world's five major climates.</p> <p><b>Lesson 5:</b> SWBAT: Use my knowledge of the effects of natural hazards to design a windproof house made out of paper and limited materials.</p>		<p>What Are Weather Patterns? Animals Get Ready Ilse and the International Camp An introduction to climates <a href="#">What is Climate?</a> <i>How a House is Built</i> by Gail Gibbons: <i>Wind</i> by Ann Herriges:</p>
Animals Throug	<a href="#">Interdependent Relationships in</a>	habitat	<b>What are the interdependent</b>	<b>Lesson 1:</b> How can I analyze and	<b>Lesson 1:</b>	<a href="#">Lesson 1 Assessment</a>	<a href="#">A Whale of a Find</a>



<p>h Time (9 weeks)</p>	<p><b><u>Ecosystems:</u></b></p> <p><b><u>Inheritance &amp; Variation of Traits: Life Cycles &amp; Traits</u></b></p> <ul style="list-style-type: none"> <li>• 3-LS4-1: Fossil Evidence of Past Environments</li> <li>• 3-LS4-4: Environmental Change Solution</li> <li>• 3-LS3-1: Inheritance and Variation of Traits</li> <li>• 3-LS4-2: Variation, Survival, and Reproduction</li> <li>• 3-LS2-1: Animal Groups</li> <li>• 3-LS4-3: Habitats and</li> </ul>	<p>fossil extinct mammals carnivore herbivore omnivore species generation social behavior life cycle parasite malaria constraint traits</p>	<p><b>relationships in any ecosystem?</b></p>	<p>interpret data from fossils to provide evidence of the organisms and the environment in which they lived long ago? (3-LS4-1, 3-LS4-4)</p> <p><b>Lesson 2:</b> How can I use clues from fossils to determine what extinct animals looked like? (3-LS4-1)</p> <p><b>Lesson 3:</b> How can I can identify fossil dinosaur tracks and reveal how quick a dinosaur could run?(3-LS4-1)</p> <p><b>Lesson 4:</b> How can I understand that nature, not humans, can slowly change the appearance of an animal using the process of selection. (3-LS3-1, 3-LS4-2)</p> <p><b>Lesson 5:</b> How can I analyze and recognize that selection will happen without</p>	<p>SWBAT: Identify fossils in various environments.</p> <p><b>Lesson 2:</b> SWBAT: Analyze fossils and use the clues to identify their characteristics.</p> <p><b>Lesson 3:</b> SWBAT: Examine fossils and interpret a dinosaur's size and rate of speed.</p> <p><b>Lesson 4:</b> SWBAT: Recognize and understand that animals adapt over time based on their surroundings.</p> <p><b>Lesson 5:</b></p>	<p><a href="#">Lesson 2 Assessment</a> <a href="#">Lesson 3 Assessment</a> <a href="#">Lesson 4 Assessment</a> <a href="#">Lesson 5 Assessment</a> <a href="#">Lesson 6 Assessment</a> <a href="#">Lesson 7 Assessment</a> <a href="#">Unit Assessment</a></p>	<p><a href="#">Biggest Dino Ever</a> <a href="#">First Impressions</a> <a href="#">Some Dinosaurs Lived in Herds</a> <a href="#">Friendly Foxes</a> <a href="#">Scientists of Lizard Island</a></p>
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	<p>Organism Survival</p> <ul style="list-style-type: none"> <li>• 3-LS3-2: Environmental Influence on Traits</li> </ul>			<p>people. (3-LS3-1, 3-LS4-2, 3-LS4-3, 3-LS4-4)</p> <p><b>Lesson 6:</b> How can I construct an argument that some animals form groups that help them survive. (3-LS2-1)</p> <p><b>Lesson 7:</b> How can I construct an argument with evidence that in a particular habitat some organisms survive well, some survive less well, and some can not survive at all. (3-LS3-2)</p>	<p>SWBAT: Understand that selection happens without human interaction.</p> <p><b>Lesson 6:</b> SWBAT: Understand that animals depend on each other for survival.</p> <p><b>Lesson 7:</b> SWBAT: Explain how organisms do and do not survive in their particular environment.</p>		
<p><b>Circle of Life (5 weeks)</b></p>	<p><b><u>Interdependent Relationships in Ecosystems</u></b></p> <p><b><u>Inheritance &amp; Variation of Traits:</u></b></p> <p><b><u>Life Cycles &amp; Traits</u></b></p> <ul style="list-style-type: none"> <li>• 3-LS2-1: Animal Groups</li> <li>• 3-LS4-3: Habitats and</li> </ul>	<p>chrysalis</p> <p>metamorphosis</p> <p>timeline</p> <p>life cycle</p> <p>tropics</p> <p>nectar</p> <p>pollen</p> <p>pollination</p>	<p><b>What happens to organisms when their environment changes?</b></p>	<p><b>AP</b> - How do all living things go through a similar set of major life events: birth, growth, reproduction, and death?</p> <p><b>Lesson 1:</b> How can I compare the life stories of different animals? (3-LS1-1)</p>	<p><b>Lesson 1:</b> SWBAT: Describe the life stories of different animals and plants and</p>	<p><a href="#">Lesson 2 Assessment</a></p> <p>*New Unit: There are currently no assessments posted in Mystery Science. Teachers can pull general animal and plant life cycle unit diagrams to give as an assessment. These can be</p>	<p><b>Elton John's Musical Introduction :</b></p> <p><a href="https://youtu.be/lwH9YvhPN7c">https://youtu.be/lwH9YvhPN7c</a></p> <p>Each activity has specific items needed, please check</p>

	<p>Organism Survival</p> <ul style="list-style-type: none"> <li>3-LS4-4: Environmental Change Solution</li> <li>3-5-ETS1-2: Generate and compare multiple possible solutions to a problem based on how well each is likely to meet criteria and constraints of the problem.</li> </ul>	reproduce		<p><b>Lesson 2:</b> How do mosquitoes carry diseases such as malaria? (3-LS4-3, 3-LS4-4, 3-5-ETS1-2)</p> <p><b>Lesson 3:</b> How do changes to pollinators affect plant reproduction? (3-LS1-1)</p> <p><b>PT:</b> How do bats and saguaros interact with one another?</p>	<p>how they are all similar.</p> <p><b>Lesson 2:</b> SWBAT: Describe how changes to the life cycle affect plants and animals.</p> <p>SWBAT: Conduct an experiment to create a way to eliminate mosquitoes from different environments.</p> <p><b>Lesson 3:</b> SWBAT: Describe how plants/animals and the environment all work together.</p>	<p>posted to this document, as we teach this unit/lesson.</p> <p><b><u>CIRCLE OF LIFE INVESTIGATION</u></b></p>	<p>Activity Prep before beginning each lesson.</p> <p>Lesson 1: <a href="#">A Frog's Life</a> (There are more readings if you'd like more)</p> <p>Lesson 2: No Readworks link for this one but there is one for Epic</p> <p>Lesson 3: <a href="#">Insects and Animals that Pollinate Plants Ecology</a></p> <p>"Grow a Butterfly" kit - to be purchased</p>
<p><b><u>Power of Flowers (5 weeks)</u></b></p>	<p><b><u>Inheritance &amp; Variation of Traits: Life Cycles &amp; Traits</u></b></p> <ul style="list-style-type: none"> <li>3-LS1-1: Plant and</li> </ul>	<p>Pollination Anther Nectar Fruit Seed</p>	<p><b>How do organisms vary in their traits?</b></p> <p><b>How are plants,</b></p>	<p><b>Lesson 1:</b> Why do plants grow flowers? (3-LS1-1)</p>	<p><b>Lesson 1:</b> SWBAT: Learn how and why</p>	<p><a href="#">Lesson 1 Assessment</a> <a href="#">Lesson 2 Assessment</a> <a href="#">Lesson 3 Assessment</a></p>	<p>Life Cycle of a Pumpkin</p>

	<p>Animal Life Cycles</p> <ul style="list-style-type: none"> <li>3-LS3-1: Inheritance and Variation of Traits</li> </ul>	<p>Ovary Selection Inherit</p>	<p><b>animals, and environments of the past similar and different from current plants, animals and the environment?</b></p> <p><b>What happens to organisms when their environment changes?</b></p>	<p><b>Lesson 2:</b> Why do plants give us fruit? (3-LS1-1)</p> <p><b>Lesson 3:</b> Do plants and animals have traits inherited from parents? (3-LS3-1)</p> <p><b>Lesson 4:</b> Can traits be influenced by the environment? (3-LS3-1)</p>	<p>flowers are pollinated.</p> <p><b>Lesson 2:</b> SWBAT: Learn why plants grow fruit.</p> <p>SWBAT: Examine produce to determine if it is a science fruit or science vegetable.</p> <p><b>Lesson 3:</b> SWBAT: Learn how the food we eat is a result of selection.</p> <p><b>Lesson 4:</b> SWBAT: Explore how human beings have modified plants based on our knowledge of how plants inherit their traits.</p>	<p><a href="#">Lesson 4 Assessment Unit Assessment</a></p>	
<p><b><u>Invisible Forces (6 weeks)</u></b></p>	<p><b>Forces &amp; Interactions</b></p> <ul style="list-style-type: none"> <li>3-PS2-1: Balanced and Unbalanced Forces</li> <li>3-5-ETS1-2: Generate and</li> </ul>	<p>engineer forces steep gravity friction magnet property attract repel hover</p>	<p><b>How do equal and unequal forces on an object affect the object?</b></p>	<p><b>Lesson 1:</b> How do forces (pushes and pulls) move objects? (3-PS2-1)</p> <p><b>Lesson 2:</b> How can students use their knowledge of forces to build a strong</p>	<p><b>Lesson 1:</b> SWBAT: Build a bridge using knowledge of forces in building/engineering.</p> <p><b>Lesson 2:</b> SWBAT: Identify how</p>	<p><a href="#">Lesson 1 Assessment</a>  <a href="#">Lesson 2 Assessment</a>  <a href="#">Lesson 3 Assessment</a>  <a href="#">Lesson 4 Assessment</a>  <a href="#">Lesson 5 Assessment</a>  <a href="#">Unit Assessment</a></p>	<p>Lesson 1: <a href="#">Fishing for Forces</a></p> <p>Lesson 2: <a href="#">Gallop for Gertie</a></p>

	<p>compare multiple possible solutions to a problem based on how well each is likely to meet criteria and constraints of the problem.</p> <ul style="list-style-type: none"> <li>● 3-5-ETS1-3: Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.</li> <li>● 3-PS2-2: Predicting Future Motion</li> <li>● 3-PS2-3: Electric and</li> </ul>			<p>bridge that will support as many pennies as possible, using only paper?  3-5-ETS1-1,  13-5-ETS1-2,  3-5-ETS1-3,  Foundational  3-PS2-1)</p> <p><b>Lesson 3:</b> What is friction and how does it affect motion?  (3-PS2-1, 3-PS2-2)</p> <p><b>Lesson 4:</b> What can magnets do?  (3-PS2-3, 3-PS2-4)</p> <p><b>Lesson 5:</b> How could you unlock a door using a magnet?  (3-PS2-3, 3-PS2-4,  3-5-ETS1-1,  3-5-ETS1-2,  3-5-ETS1-3)</p>	<p>equal and unequal forces affect the movement of an object.</p> <p><b>Lesson 3:</b>  SWBAT: Move objects using knowledge of friction and identify how less/more friction affects movement of said objects.</p> <p><b>Lesson 4 &amp; 5:</b>  SWBAT: Identify how magnets work.</p>		<p>Lesson 3:  <a href="#">Scientists Solve a Sticky Problem</a></p> <p>Lesson 4:  <a href="#">Hunting for Rocks from Outer Space</a></p> <p><a href="#">The Biggest Magnet in the World</a></p> <p>Lesson 5: No links for reading</p>
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Magnetic Forces

- 3-PS2-4: Magnetic Design Solution
- 3-5-ETS1-1: Define a simple design problem reflecting a need or a want that includes a specified criteria for success and constraints on materials, time and cost.

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# Fourth Grade



**Grand Island Central School District Curriculum Map  
Grade 4 , Science, November 2023**

<u>Units of Study</u>	<u>NYS Next Generation Science Standards</u>	<u>Vocabular</u> y	<u>Essential Questions</u> (Big Idea Questions)	<u>Topical Questions</u> (May be written as “I can” statements)	<u>Essential Skills</u> (May be written as “I can” statements)	• <u>Assessments</u>  • Tests • Quizzes • Performance • Labs • Essays • Authentic Assessments	<u>Resources</u>  • Texts • Tech • Integration • Materials • Articles • Links
<p><b>Human Body</b></p> <p>Lesson 1: Why do your biceps bulge? (4-LS1-1)</p> <p>Lesson 2: What do people who are blind see? (4-LS1-1, 4-LS1-2, 4-PS4-2)</p> <p>Lesson 3: How can some animals see in the dark? (4-LS1-1, 4-LS1-2, 4-PS4-2)</p> <p>Lesson 4: How</p>	<p>4-LS1-1: Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction</p> <p>4-LS1-2: Use a model to describe that</p>	<p>bones muscles tendon bicep</p> <p>pupil cornea-lens retina iris vision</p> <p>brain senses nerves</p>	<p>How are structures and functions of the human body interconnected?</p>	<p>Lesson 1: How is human motion made possible by a system of muscles, tendons and bones?</p> <p>Lesson 2-3: How does the eye work as a system of different parts that interact to facilitate vision?</p> <p>Lesson 2-3: How does light interact with the system to</p>	<p>Lesson 1: Students build a model of a finger that they then use to explain how fingers move.</p> <p>Lesson 2: Students build a model of an eyeball that they then use to explain why some people have blurry vision.</p> <p>Lesson 3:</p>	<p>Mystery Science Lesson 1 Assessment <a href="#">Student Copy</a> <a href="#">Answer Key</a></p> <p>Mystery Science Lesson 2 Assessment <a href="#">Student Copy</a> <a href="#">Answer Key</a></p> <p>Mystery Science Lesson 3 Assessment <a href="#">Student Copy</a> <a href="#">Answer Key</a></p> <p>Mystery Science</p>	<p>Mystery Science program and materials</p> <p>Readworks</p> <p>Newsela</p>



<p>does your brain control your body? (4-LS1-1, 4-LS1-2)</p>	<p>animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways</p> <p>4-PS4-2: Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen</p>			<p>determine what images we see? (cause and effect.)</p> <p>Lesson 4: How does your brain control your body?</p>	<p>Students conduct an investigation to see how pupils change in response to light</p> <p>Students build a model of an eye to explain how changes in pupil size changes the image that appears on the retina.</p> <p>Lesson 4: Students conduct investigations to explore how the brain processes information and responds to that information.</p> <p>Students analyze and interpret data from the investigations to determine how fast their reflexes are.</p>	<p>Lesson 4 Assessment <a href="#">Student Copy</a> <a href="#">Answer Key</a></p> <p>Mystery Science Unit Assessment <a href="#">Student Copy</a> <a href="#">Answer Key</a></p>	
<p><b>Birth of Rocks</b></p> <p>Anchor Phenomenon: Fossil Finds (4-ESS1-1,</p>	<p>4-ESS1-1. Identify evidence from patterns in rock formations and fossils in</p>	<p>Erosion Weathering Lava Eruption Volcano Sedimentary</p>	<p>What natural processes change the Earth's features?</p>	<p>Lesson 1: In what area of the world are volcanoes most likely to form?</p>	<p>Lesson 1: Students will plot volcano locations on a world map, and look for patterns.</p>	<p><a href="#">Lesson 1 Quiz</a> <a href="#">Lesson 1 Answer Key</a></p> <p><a href="#">Lesson 2 Quiz</a> <a href="#">Lesson 2 Answer Key</a></p>	<p>Mystery Science program and kits with activity materials</p>

<p>4-ESS2-1, 4-ESS2-2)</p> <p>Lesson 1: Could a volcano pop up where you live? (4-ESS1-1, 4-ESS2-2)</p> <p>Lesson 2: Why do some volcanoes explode? (4-ESS1-1)</p> <p>Lesson 3: Will a mountain last forever? (4-ESS1-1, 4-ESS2-1)</p> <p>Lesson 4: What did your town look like 100 million years ago? (4-ESS1-1)</p> <p>Lesson 5: How could you survive a landslide? (4-ESS2-1, 4-ESS3-2)</p>	<p>rock layers to support an explanation for changes in a landscape over time.</p> <p>4-ESS2-1. Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.</p> <p>4-ESS2-2. Analyze and interpret data from maps to describe patterns of Earth's features.</p> <p>4-ESS3-2. Generate and compare multiple solutions to reduce the</p>	<p>Fossils Canyon Landslides Prevention Rockslides Mudslides Avalanche Natural Hazard</p>		<p>Why do volcanoes have different shapes?</p> <p>Lesson 2: How does the type of lava explain why some volcanoes explode?</p> <p>Lesson 3: What is the process of weathering?</p> <p>How does weathering explain how mountains erode?</p> <p>Lesson 4: How does sedimentary rock preserve fossils?</p> <p>Lesson 5: What are the types of landslides?</p> <p>What are the causes of landslides?</p>	<p>Lesson 2: Students compare two different types of lava, and use this information to determine the difference in volcanic shapes and eruptions.</p> <p>Lesson 3: Students will model the process of weathering through sugar cubes, to explain the different shapes of rocks and their location on a mountain.</p> <p>Lesson 4: Students will analyze fossils and their characteristics to explain why Earth's landscape has changed numerous times.</p> <p>Lesson 5: Students will design engineering solutions to protect a house from a landslide,</p>	<p><a href="#">Lesson 3 Quiz</a> <a href="#">Lesson 3 Answer Key</a></p> <p>No quiz for Lesson 4</p> <p><a href="#">Lesson 5 Quiz</a> <a href="#">Lesson 5 Answer Key</a></p> <p><a href="#">Unit Assessment</a> <a href="#">Unit Assessment Answer Key</a></p>	<p>Readworks</p>
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	impacts of natural Earth processes on humans.			What are the dangers of landslides?  What can be done to prevent landslides?	and prevent one from happening.		
<p><b>Waves of Sound</b></p> <p>Lesson 1: How far can a whisper travel? (4-PS4-1, 4-PS4-3)</p> <p>Lesson 2: What would happen if you screamed in outer space? (4-PS4-1)</p> <p>Lesson 3: Why are some sounds high and some sounds low? (4-PS4-1)</p>	<p>4-PS4-1: Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.</p> <p>4-PS4-3: Generate and compare multiple solutions that use patterns to transfer information.</p>	<p>energy</p> <p>wave</p> <p>vibration</p> <p>amplitude</p> <p>wavelength</p> <p>pitch</p> <p>oscilloscope</p>	<p>What are sound waves and how does sound energy travel?</p>	<p>What is a sound wave?</p> <p>How do sound waves travel?</p> <p>What matter/material do sound waves travel through?</p> <p>Why are some sounds high-pitched and some sounds low-pitched?</p>	<p>Lesson 1: Students will describe the connection between sounds and vibration.</p> <p>Lesson 2: Students will explore the role that air plays in enabling a sound vibration to travel.</p> <p>Lesson 3: Students will discover that sound is a wave.</p> <p>Students will analyze and interpret data from oscilloscopes to determine how wave lengths differ between high- and</p>	<p>Mystery Science Lesson 1 Assessment <a href="#">student copy</a> <a href="#">answer key</a></p> <p>Mystery Science Unit Assessment <a href="#">student copy</a> <a href="#">answer key</a></p>	<p>Mystery Science Unit: Waves of Sound</p> <p>Readworks</p>

					low-pitched sounds.  Students will draw waves that different sounds make.		
<p><b>Energizing Everything</b></p> <p>Lesson 1: How is your body similar to a car? (4-PS3-1, 4-PS3-4)</p> <p>Lesson 2: What makes roller coasters go so fast? (4-PS3-1, 4-PS3-3)</p> <p>Lesson 3: Why is the first hill of a roller coaster always the highest?(4-PS3-3)</p> <p>Lesson 4: Could you knock down a building using only dominoes? (4-PS3-4, 3-5-ETS1-1)</p> <p>Lesson 5: Can you build a chain reaction machine?</p>	<p>4-PS3-1: Use evidence to construct an explanation relating the speed of an object to the energy of that object</p> <p>4-PS3-2: Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric current</p> <p>4-PS3-3: Ask questions and predict outcomes about the changes in energy that occur when objects collide</p>	<p>Energy Collision Transfer Stored Released Height Speed Convert Function Electricity</p>	<p>How is energy stored, how does it make objects move?</p> <p>How do collisions transfer energy between objects and move from one form to another?</p>	<p>Lesson 1: How are our bodies, and how they function, similar to a car?</p> <p>Lesson 2: What makes roller coasters move so fast?</p> <p>Lesson 3: Why does the first hill of a rollercoaster always have to be the highest hill?</p> <p>Lesson 4: Would it be possible to knock down a building using only dominoes?</p> <p>Lesson 5:</p>	<p>Lesson 1: Students will be able to build a model of an amusement park ride called the Twist-o-Matic. They use the model to carry out an investigation to examine the relationship between energy and speed.</p> <p>Students will be able to analyze and interpret data from their models, comparing the speed of the ride using a thin versus thick rubber band.</p> <p>Lesson 2: Students will be able to build a</p>	<p>NYS Investigations: Energy Light it Up</p> <p>Lesson 1 Assessment Quiz <a href="#">Student Copy</a> <a href="#">Answer Key</a></p> <p>Lesson 2 Assessment Quiz <a href="#">Student Copy</a> <a href="#">Answer Key</a></p> <p>Lesson 3 Assessment Quiz <a href="#">Student Copy</a> <a href="#">Answer Key</a></p> <p>Lesson 4 Assessment Quiz <a href="#">Student Copy</a> <a href="#">Answer Key</a></p> <p>Lesson 5 Assessment Quiz</p>	<p>Mystery Science program and materials</p> <p>Readworks</p> <p>Student note sheets</p>

<p>(4-PS3-4, 3-5-ETS1-1, 3-5-ETS1-2, 3-5-ETS1-3)</p> <p>Lesson 6: What if there were no electricity? (4-PS3-2, 4-PS3-4)</p> <p>Lesson 7: How long did it take to travel across the country before cars and planes? (4-PS3-2, 4-PS3-4)</p> <p>Lesson 8: Where does energy come from? (4-ESS3-1)</p>	<p>4-PS3-4: Apply scientific ideas to design, test, and refine a device that converts energy from one form to another</p> <p>3-5-ETS1-1: Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost</p> <p>3-5-ETS1-2: Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem</p> <p>3-5-ETS1-3: Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or</p>			<p>Can you build or construct a chain reaction machine?</p> <p>Lesson 6: What would happen if there was no electricity?</p> <p>Lesson 7: How long did it use to take people to travel across the country before cars and planes were created?</p> <p>Lesson 8: Where does energy come from?</p>	<p>model of a roller coaster and carry out an investigation using marbles.</p> <p>Students will be able to analyze and interpret data from the model to explain the connection between height, energy, and speed.</p> <p>Students will be able to begin to build an understanding of energy transfer as they observe what happens when additional marbles (additional collisions) are added to the model.</p> <p>Lesson 3: Students will be able to conduct an investigation using a model roller coaster to determine how energy can be</p>	<p>Same quiz as Lesson 4</p> <p>Lesson 6 Assessment Quiz <a href="#">Student Copy</a> <a href="#">Answer Key</a></p> <p>Lesson 7 Assessment Quiz <a href="#">Student Copy</a> <a href="#">Answer Key</a></p> <p>Lesson 8 Assessment Quiz <a href="#">Student Copy</a> <a href="#">Answer Key</a></p> <p>Unit Assessment <a href="#">Student Copy</a> <a href="#">Answer Key</a></p> <p><a href="#">PDF of Links for Google Form Versions of the assessments</a></p>	
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	<p>prototype that can be improved</p> <p>4-ESS3-1: Obtain and combine information to describe that energy and fuels are derived from natural resources and that their uses affect the environment</p>				<p>stored in the hills of the coaster.</p> <p>Students will be able to analyze and interpret data from the model to understand that marbles must start at the tops of hills so that they will have enough energy to reach the goal at the end of the track.</p> <p>Lesson 4: Students will be able to begin to design a chain reaction machine. They start by figuring out how to connect two components of the chain reaction: the lever and the slide.</p> <p>Lesson 5: Students will be able to design a chain reaction machine that displays a message at the end. The chain reaction machines</p>		
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					<p>use multiple components that transfer energy from one part to the next.</p> <p>Lesson 6: Students will be able to design a flashlights using batteries, lights and tin foil. Students experiment with different ways of constructing their flashlights so that they turn on and off.</p> <p>Lesson 7: Students will be able to build a paper spinner and conduct an investigation to explain how heat makes things move.</p> <p>Lesson 8: Students will be able to evaluate the advantages and disadvantages of alternative energy sources to power</p>		
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					<p>a town. Students will be able to obtain and evaluate information about the needs of each source of energy and analyze and interpret data about the town's resources.</p>		
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# **Fifth Grade**



Grand Island Central School District Curriculum Map

Grade 5, Science, November 2022

<p><b><u>Units of Study</u></b></p>	<p><b><u>NYS Standards NYSSLS - NYS Science Learning Standards</u></b></p>	<p><b><u>Vocabulary</u></b></p>	<p><b><u>Essential Questions</u></b> (Big Idea Questions)</p>	<p><b><u>Topical Questions</u></b> (May be written as "I can" statements)</p>	<p><b><u>Essential Skills</u></b> (May be written as statements)</p>	<p><b><u>Assessments</u></b></p> <ul style="list-style-type: none"> <li>• Tests</li> <li>• Quizzes</li> <li>• Performance</li> <li>• Labs</li> <li>• Essays</li> <li>• Authentic Assessments</li> </ul>	<p><b><u>Resources</u></b></p> <ul style="list-style-type: none"> <li>• Texts</li> <li>• Tech Integration</li> <li>• Materials</li> <li>• Articles</li> <li>• Links</li> </ul>	<p><b><u>Time Frame</u></b></p>
<p><b><u>Matter and Energy in Organisms and Ecosystems</u></b></p>	<p><a href="#">5-LS1-1: Plant Requirements - Air and Water</a> <a href="#">5-LS2-1: Environmental Matter Cycling</a> <a href="#">5-PS3-1: Food Energy from the Sun</a></p>	<p>Biosphere Decomposers Organism Nutrients Matter Cycle Ecosystems Food Chain omnivore carnivore herbivore</p>	<p><b>Anchor Phenomenon</b> <b>Ecosystem Design &amp; Modeling</b></p>	<p>What is the relationship that animals have with each other? (5-LS2-1)  What do plants need in order to grow and survive? (5-LS1-1, 5-LS2-1)  How do dead plants and animals contribute towards the creation of soil? (5-LS2-1)  What role do worms play in the decomposition process?</p>	<p>- Food Chains, Herbivores, Carnivores, and Herbivores  -Plants needs: Food &amp; Water  -Decomposers, Nutrients, and Matter Cycle  -Ecosystems  -Food Webs and Flow of Energy</p>	<p><b>Web of Life Unit Assessment</b></p>	<p><b><u>Mys Sci Unit 1: Ecosystems &amp; The Food Web</u></b>  NewsELA article: <a href="#">Wild animals are losing their fear as largest predators disappear</a>  NewsELA article: <a href="#">Changes in West Coast waters lead to sea lion</a></p>	<p>7 weeks -1 week each lesson -1 week to accommodate anchor phenomenon and review/assessment</p>

	<p>decomposer mold spores decaying</p> <p>food webs</p> <p>flow of energy</p> <p>hydrosphere</p> <p>roles of water</p> <p>mixtures</p> <p>solutions</p> <p>plant growth</p> <p>stomata (guard cells)</p> <p>conservation of matter</p> <p>ground water</p> <p>natural resource</p> <p>water cycle</p>	<p>(5-LS2-1)</p> <p>If one organism disappears, what happens to the ecosystem? (5-LS2-1)</p> <p>What is a food web? How is energy distributed through the food web? (5-PS3-1)</p>	<p><a href="#">pups going hungry</a></p> <p>Video: <a href="#">What do animals eat</a></p> <p>Readworks: <a href="#">A Plant puzzle</a></p> <p>Video: <a href="#">NOVA Photosynthesis</a></p> <p>Readworks article: <a href="#">Pet Cemetary</a></p> <p>Readworks article: <a href="#">Ice Harvest</a></p> <p>Video: <a href="#">When Strawberries go bad</a></p> <p>Video: <a href="#">When Watermelons go Bad</a></p> <p>Video: <a href="#">When an</a></p>
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natural  
disaster

engineerin  
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[Entire Bowl  
of Fruit Rots](#)

Epic Book:  
[Inside the  
Worm's Hole](#)

Epic Book:  
[How Do  
Animals  
Help Make  
Soil](#)

PBS Video  
[Wonderful  
Worms](#)

BBC Video:  
[Britians  
Earthworms](#)

NewsELA  
article:  
[Scientists  
Study Why  
algae  
blooms are  
choking  
airways](#)

NewsELA:  
[What is a  
Biosphere?](#)

Video: [Life  
Under a  
Microscope:  
Living](#)

							<a href="#">Things in Water</a> Thought Co. Article: <a href="#">Dracroex Hogwartsia</a> NewsELA article: <a href="#">Theory that Mammels because Daytime Dwellers.</a> Video: <a href="#">Are Birds Really Dinosaurs?</a>	
<u><b>Water Cycle &amp; Earth's Systems</b></u>	5-ESS2-1 5-ESS2-2 5-ESS3-1 5-PS1-2 5-ETS1-1 5-ETS1-2 5-ETS1-3	ground water hydrosphere water cycle fresh water salt water evaporate condensation aquifers	<b>Watery Planet</b>	<b>Watery Planet</b> <b>Lesson 1:</b> -How much freshwater is available to humans?  <b>Lesson 2:</b> -Is matter conserved when its properties change?  <b>Lesson 3:</b> -Where can we get drinking water from?  <b>Lesson 4:</b> -Does water disappear? -Where does rain come from?	1. I can make and interpret a graph to determine water availability.  2. I can explore the properties of salt water.  3. I can use information sources to determine the best place to start a town.	<b>Watery Planet Unit Assessment</b>	<b>Mystery Science Unit 2: Watery Planet</b>  <b>Lesson 1</b> Newsela: <a href="#">Old cold: Climatologists in pursuit of 1 million-year-old ice in Antarctica</a>  Newsela: <a href="#">In a drought, experts say drinking purified wastewater is an option</a>  <b>Video:</b> <a href="#">"What's Below the</a>	6 weeks -1 week each lesson -1 week to accommodate anchor phenomenon and review/assessment

		<p>conservation</p> <p>drought</p> <p>atmosphere</p> <p>precipitation</p> <p>water vapor</p> <p>well</p>		<p><b>Lesson 5:</b></p> <p>-How can we solve a problem using limited resources?</p>	<p>4. I can explain the steps of the water cycle.</p> <p>5. I can plan and design a solution to a problem.</p>		<p><a href="#">Tip of the Iceberg?"</a></p> <p><b>Video:</b> <a href="#">"How Big Is the Ocean?"</a></p> <p><b>Lesson 2</b> <u>Readworks:</u> <a href="#">Great Salt Lake in Utah</a></p> <p><a href="#">Uyuni Salt Flat of Bolivia</a></p> <p><u>Wonderopolis:</u> <a href="#">Dead Sea</a></p> <p><a href="#">Where does all that salt come from?</a></p> <p><b>Lesson 3</b> <u>Newsela:</u> <a href="#">Pumping water for thirsty crops may cause small earthquakes in California</a></p> <p><u>Videos:</u> <a href="#">Groundwater beneath the surface</a></p>	
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							<p><a href="#">Got Water?</a></p> <p><b>Lesson 4</b> <b>Newsela:</b> "The water cycle."</p> <p><a href="#">Los Angeles seeds clouds to boost rainfall after five years of drought</a></p> <p><u>Video:</u> "The Great Aqua Adventure"</p> <p><b>Lesson 5</b> <b>Newsela:</b> <a href="#">Hurricane Florence</a></p> <p><a href="#">Fuel for the Storm</a></p>	
<p><b><u>Space Systems: Stars &amp; The Solar System</u></b></p>	<p><b>5-PS2-1.</b> Support an argument that the gravitational force exerted by Earth on objects is directed down</p> <p><b>5-ESS1-1.</b> Support an argument that</p>	<p>rotation</p> <p>shadow</p> <p>revolve</p> <p>sundial</p> <p>constellation</p> <p>seasons</p> <p>pattern</p>	<p><b>Spaceship Earth Anchor Phenomenon:</b></p> <p><b>Star trails that appear in long-exposure photographs. Students generate observations and questions</b></p>	<p><b>Spaceship Earth</b></p> <p>Lesson 1: How fast does the Earth spin? (5-ESS1-2)</p> <p>Lesson 2: Who set the first clock? (5-ESS1-2)</p> <p>Lesson 3: How can the Sun tell you the season? (5-ESS1-2)</p> <p>Lesson 4: Why do</p>	<p>1. I can recognize that the Sun moving across the sky is a pattern that can be explained by the Earth spinning and causes the effect of the Sun appearing to move across the sky.</p>	<p><b>Spaceship Earth</b> Unit Assessment</p> <p>Vocab A-Z assessment</p>	<p><b>MYSTERY SCIENCE: SPACESHIP EARTH</b></p> <p><a href="https://mysteryscience.com/astronomy/stars-the-solar-system">https://mysteryscience.com/astronomy/stars-the-solar-system</a></p>	<p>9 weeks</p> <p>-1 week each lesson</p> <p>-1 week to accommodate anchor phenomenon and review/assessment</p>

	<p>differences in the apparent brightness of the Sun compared to other stars is due to their relative distances from Earth.</p> <p><b>5-ESS1-2.</b> 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>moon phases</p> <p>half moon</p> <p>orbit</p> <p>crescent</p> <p>new moon</p> <p>full moon</p> <p>waxing</p> <p>waning</p> <p>gravity</p> <p>lunar cycle</p> <p>planet</p> <p>exoplanets</p> <p>stars</p> <p>solar system</p> <p>habitable</p> <p>scaled models</p>	<p><b>about the phenomenon and create an initial model to explain what causes these patterns to form.</b></p>	<p>the stars change with the seasons? (5-ESS1-2)</p> <p>Lesson 5: Why does the Moon change shape? (5-ESS1-2)</p> <p>Lesson 6: What are the wandering stars? (5-ESS1-2)</p> <p>Lesson 7: Why is gravity different on other planets? (5-PS2-1)</p> <p>Lesson 8: Could there be life on other planets? (5-ESS1-1)</p>	<p><b>2. I can observe patterns in the change of shadow length and position throughout the day and use shadow patterns to determine what time of day it is, without the use of a clock.</b></p> <p><b>3. I can observe the pattern of seasons caused by the sun's path and recognize that the unique characteristics of each season are caused by the sun's position in the sky.</b></p> <p><b>4a. I can observe the seasonal pattern of stars and note the change of constellations that are visible in the night sky, based on the season.</b></p> <p><b>4b. I can use evidence to argue that Earth is orbiting the Sun, and we only see a part of the night sky at a time.</b></p> <p><b>5. I can consider the phases of the</b></p>			
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					<p><b>Moon as a pattern and learn that the orbit of the Moon around Earth causes each different phase.</b></p> <p><b>6. I can use a system model of the solar system to understand the parts (the planets and sun) that make up the whole solar system.</b></p> <p><b>7. I can understand that the amount of gravity a planet has (cause) will impact the height that they are able to jump (effect).</b></p> <p><b>8. I can consider how the conditions of the Sun and planets in our Solar System can be extended to learn about other solar systems.</b></p>			
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<p><b><u>Chemical Reactions &amp; Properties of Matter</u></b></p>	<p><b>5-PS1-1.</b> Develop a model to describe that matter is made of particles too small to be seen.</p> <p><b>5-PS1-2.</b> Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances the total amount of matter is conserved.</p>	<p>Mixtures</p> <p>Solutions</p> <p>Conservation of Matter</p> <p>Gravity</p> <p>Chemistry</p> <p>Alchemist</p> <p>Substance</p> <p>Dissolving</p> <p>Vanish</p> <p>Particle Nature of Matter</p> <p>Acids</p> <p>Reactions</p>	<p><b>Anchor Phenomenon:</b> Matter interacts in different ways in the world around us (Disappearing Gargoyles)</p> <p><b>Chemical Magic</b></p>	<p><b>Chemical Magic</b></p> <p>Lesson 1: What is matter made of? (5-PS1-1, 5-PS1-2)</p> <p>Lesson 2: How can matter be changed? (5-PS1-1, 5-PS1-2)</p> <p>Lesson 3: How do acids react? (5-PS1-3)</p> <p>Lesson 4: What different reactions can happen when different substances are mixed? (5-PS1-4)</p> <p>Lesson 5: Why is gas produced when certain substances are combined? (5-PS1-1)</p>	<p>1. I can observe the effect of solutions on a penny. I can understand that substances undergo change.</p> <p>2. I can use solutions to copper plate a steel nail. I can create a conceptual model to represent that particles from the penny are the same ones to copper plate the nail.</p> <p>3. I can consider the cause and effect relationship when</p>	<p>What's in the Bag? NYS Sci Investigation</p> <p><b>Chemical Magic</b> Unit Assessment</p> <p><b>Vocabulary Assess.</b> Vocab A-Z Assessment for Vocab terms</p>	<p><a href="#">Mys Sci Unit 5: Chemical Magic</a></p>	<p>7 weeks -1 week each lesson -1 week to accommodate anchor phenomenon and review/assessment -1 week to do Investigation with pairs of students</p>

**5-PS1-3.**  
Make observations and measurements to identify materials based on their properties

**5-PS1-4.**  
Conduct an investigation to determine whether the mixing of two or more substances results in new substances.

Properties of Matter

Chemical Reactions

Gases

Particulate Matter

Explosions

combining chemicals to produce reactions. I can understand that combining two chemicals may result in a change in the substance.

4. I can combine different substances and watch for their reactions, if any.  
I can combine glue and borax to determine the reaction.

5. I can observe the reactions produced when baking soda and vinegar are combined (bubbles, bag popping).