

**Southington Public Schools
Curriculum Map**

Subject: Science

Grade: 4

UNIT TITLE	#1 Changing Earth	#2 Force & Motion	#3 Adaptations	#4 Food Chains	#5 Electricity & Magnetism	#6 Water Cycle & Erosion
CONTENT	<p>Landforms result from earth forces:</p> <ul style="list-style-type: none"> • Formation, location, effects of Volcanoes and Earthquakes 	<p>Force & Motion:</p> <ul style="list-style-type: none"> • Push & Pull Strengths/Effects • Effect of Object Mass on Motion • Change in Objects Motion 	<p>Adaptations:</p> <ul style="list-style-type: none"> • Plants and Animals on land/water • Structures and Behaviors 	<p>Food Chains:</p> <ul style="list-style-type: none"> • Animals depend on plants/animals to survive • Habitats • Impact on Living Things/Habitats 	<p>Electricity:</p> <ul style="list-style-type: none"> • Circuits • Components • Transformed other energy • Magnet move some objects 	<ul style="list-style-type: none"> • Water Cycle • Water erodes Land • Water forms Rivers
STATE STANDARDS	<p>Landforms are the result of the interaction of constructive and destructive forces over time.</p> <ul style="list-style-type: none"> • Volcanic activity and the folding and faulting of rock layers during the shifting of the Earth's crust affect the formation of mountains, ridges, and valleys. <p>C20. Explain how the boundaries of tectonic plates can be inferred from the location of earthquakes and volcanoes.</p> <p>B INQ.1 Make observations and ask questions about objects.</p>	<p>4.1 The position and motion of objects can be changed by pushing or pulling.</p> <ul style="list-style-type: none"> • The size of the change in an object's motion is related to the strength of the push or pull. • The more massive an object is, the less effect a given force will have on its motion. <p>B8. Describe the effects of the strengths of pushes and pulls on the motion of objects.</p> <p>B9. Describe the effect of the mass of an object on its motion.</p>	<p>3.2 Organisms can survive and reproduce only in environments that meet their basic needs.</p> <ul style="list-style-type: none"> • Plants and animals have structures and behaviors that help them survive in different environments. <p>B3 – Describe how different plants and animals are adapted to obtain air, water, food, and protection in specific land habitats.</p> <p>B4 – Describe how different plants and animals are adapted to obtain air, water, food and protection in water habitats.</p>	<p>4.2 All organisms depend on the living and nonliving features of the environment for survival.</p> <ul style="list-style-type: none"> • When the environment changes, some organisms survive and reproduce; others die or move to new locations. <p>B10. Describe how animals directly or indirectly depend on plants to provide the food and energy they need in order to grow and survive.</p> <p>B11. Describe how natural phenomena and some human activities may cause changes to habitats and their inhabitants.</p>	<p>4.4 – Electrical and Magnetic Energy can be transferred and transformed</p> <ul style="list-style-type: none"> • Electricity in circuits can be transformed into heat, light, sound and magnetic effects. • Magnets can make objects move without direct contact between the object and the magnet. <p>B.14 – Describe how batteries, wires, bulbs can transfer energy to light a light bulb be transferred and transformed.</p>	<p>4.3 – Water has a major role in shaping the Earth's surface.</p> <ul style="list-style-type: none"> • Water circulates through the Earth's crust, oceans and atmosphere. <p>B 12. Describe how the sun's energy impacts the water cycle.</p> <p>B13. Describe the role of water in erosion and river formation.</p> <p>B INQ.1 Make observations and ask questions about objects.</p> <p>B INQ.2 Seek relevant information in books, magazines and electronic media.</p> <p>B INQ.3 Design and conduct simple investigations.</p>

<p>STATE STANDARDS</p>	<p>B INQ.2 Seek relevant information in books, magazines and electronic media. B INQ.3 Design and conduct simple investigations. B INQ.4 Employ simple equipment and measuring tools to gather data and extend the senses. B INQ.5 Use data to construct reasonable explanations. B INQ.6 Analyze, critique and communicate investigations using words, graphs and drawings. B INQ.7 Read and write a variety of science-related fiction and non-fiction texts. B INQ.8 Search the Web and locate relevant science information. B INQ.9 Use measurement tools and standard units (e.g., centimeters, meters, grams, kilograms) to describe objects and materials. B INQ.10 Use mathematics to analyze, interpret and present data.</p>	<p>B INQ.1 Make observations and ask questions about objects. B INQ.2 Seek relevant information in books, magazines and electronic media. B INQ.3 Design and conduct simple investigations. B INQ.4 Employ simple equipment and measuring tools to gather data and extend the senses. B INQ.5 Use data to construct reasonable explanations. B INQ.6 Analyze, critique and communicate investigations using words, graphs and drawings. B INQ.7 Read and write a variety of science-related fiction and non-fiction texts. B INQ.8 Search the Web and locate relevant science information. B INQ.9 Use measurement tools and standard units (e.g., centimeters, meters, grams, kilograms) to describe objects and materials.</p>	<p>B INQ.1 Make observations and ask questions about objects. B INQ.2 Seek relevant information in books, magazines and electronic media. B INQ.3 Design and conduct simple investigations. B INQ.4 Employ simple equipment and measuring tools to gather data and extend the senses. B INQ.5 Use data to construct reasonable explanations. B INQ.6 Analyze, critique and communicate investigations using words, graphs and drawings. B INQ.7 Read and write a variety of science-related fiction and non-fiction texts. B INQ.8 Search the Web and locate relevant science information. B INQ.9 Use measurement tools and standard units (e.g., centimeters, meters, grams, kilograms) to describe objects and materials.</p>	<p>B INQ.1 Make observations and ask questions about objects. B INQ.2 Seek relevant information in books, magazines and electronic media. B INQ.3 Design and conduct simple investigations. B INQ.4 Employ simple equipment and measuring tools to gather data and extend the senses. B INQ.5 Use data to construct reasonable explanations. B INQ.6 Analyze, critique and communicate investigations using words, graphs and drawings. B INQ.7 Read and write a variety of science-related fiction and non-fiction texts. B INQ.8 Search the Web and locate relevant science information. B INQ.9 Use measurement tools and standard units (e.g., centimeters, meters, grams, kilograms) to describe objects and materials.</p>	<p>B.15 – Explain how simple electrical circuits can be used to determine what materials generate energy B.16 Describe the properties of magnets and how they can be used to identify and separate mixtures of solid materials</p> <p>B INQ.1 Make observations and ask questions about objects. B INQ.2 Seek relevant information in books, magazines and electronic media. B INQ.3 Design and conduct simple investigations. B INQ.4 Employ simple equipment and measuring tools to gather data and extend the senses. B INQ.5 Use data to construct reasonable explanations. B INQ.6 Analyze, critique and communicate investigations using words, graphs and drawings. B INQ.7 Read and write a variety of science-related fiction and non-fiction texts.</p>	<p>B INQ.4 Employ simple equipment and measuring tools to gather data and extend the senses. B INQ.5 Use data to construct reasonable explanations. B INQ.6 Analyze, critique and communicate investigations using words, graphs and drawings. B INQ.7 Read and write a variety of science-related fiction and non-fiction texts. B INQ.8 Search the Web and locate relevant science information. B INQ.9 Use measurement tools and standard units (e.g., centimeters, meters, grams, kilograms) to describe objects and materials. B INQ.10 Use mathematics to analyze, interpret and present data.</p>
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<p>ASSESSMENT</p>	<p><u>PERFORMANCE TASK</u> <u>1. The Changing Earth:</u> Performance Assessment for Volcanoes</p> <p>You are a park ranger who has studied geology and work at a visitor’s center. You must research and compile a travel brochure for people visiting your park’s location. Your park is located somewhere on the ring of fire, and there is volcanic activity in the area. This informative brochure must include the following:</p> <ul style="list-style-type: none"> find a location for your volcano along the ring of fire 	<p><u>PERFORMANCE TASK</u> Performance Task FOSS End of Module Levers</p> <p>Task #1: You are an engineer and your job is to set up a lever system in which the effort needed to lift the load is less than the load. You will need to determine the mass and the weight of the load. You will need to diagram your system and label the load effort and fulcrum and show the directions of the force.</p>	<p><u>PERFORMANCE TASK</u> You are a zookeeper at the Beardsley Zoo. A new animal has just arrived from a particular environment/ecosystem. You need to design a home for your animal. Draw and describe the environment for your animal that has all of the conditions needed for that animal to survive and thrive. Explain the interactions between the living and nonliving things in this environment you created.</p>	<p><u>PERFORMANCE TASK</u> Your class has been studying all about food chains and food webs. You need to explain to another student what you have eaten for one day this week. Now that you have listed all the foods, you will create a food chains to show each food item and its path from the first link of the food chain to you.</p> <p>For one meal, identify the producers and consumers for all items in that food chain.</p> <p>Please also write a summary statement explaining where the energy comes from for all foods.</p>	<p><u>PERFORMANCE TASK CSDE: Performance Task 4.4 “Go With The Flow”</u></p> <p>#1: Explore different ways to light a light bulb. Draw diagrams of circuits you made that will light your light bulb and those that did not light the bulb. How are your diagrams of each type similar?</p> <p>#2: Explore and identify which materials will conduct electricity. Design an electric circuit (predict first) and test objects with your circuit to determine which objects will conduct electricity.</p>	<p><u>PERFORMANCE TASK</u> #1 You are a Hydrologist studying the water cycle. Your task is to make a presentation and draw a picture of the water cycle to a group of students. During the presentation you are going to explain how the water cycle works and label each part of your drawing. Be sure to add in an explanation of the sun’s impact on the water cycle.</p> <p>#2 You are a famous geologist who has been studying the effects of water on land in the regions of the United States. Farmers have become upset because their growing fields are</p>

<p>ASSESSMENT</p>	<ul style="list-style-type: none"> • draw a map of where your volcano is located • tell what continent your volcano is located on • name your volcano • draw a picture of the volcano that shows what type of volcano it is • give a brief history of that volcano • tell when and how it was formed • what caused the volcano to form • label what type of volcano it is • tell when it last erupted • tell people what to expect and what they will see when visiting the volcano • tell the warning signs that the volcano is going to erupt • give safety rules to follow in the event of an eruption <p>2. <u>The Changing Earth</u>: Performance Assessment for Earthquakes</p>	<p>Performance Task FOSS End of Module- Pulleys</p> <p>Task #2: You are an engineer and your job is to set up a pulley system that will lift a load with a single moveable pulley. You will diagram your pulley system and label the load and effort. You will also need to determine how much effort is needed to lift that load in your system.</p>			<p>Create a data table for your results and write a conclusion based on these results.</p> <p>#3: Investigate your own questions about controlling the flow of electricity. Plan, design and complete an experiment to test your question. Record your findings and write out new ideas that you have learned from your experiment.</p>	<p>eroding. Your job is to inform the farmers of specific ways to prevent erosion of their land by creating a flyer which includes the following:</p> <ul style="list-style-type: none"> • Drawing of plan • Steps needed to prevent erosion
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<p>ASSESSMENT</p>	<p>You are a geologist that has been selected to be a guest speaker for a third grade classroom. The students are very curious to learn as much as possible about earthquakes. You need to explain the following things to them:</p> <ul style="list-style-type: none"> • What causes earthquakes? • How does the earth's surface change after an earthquake? • How can we keep safe during an earthquake? • How do we know how strong an earthquake was after it is over? <p>Please prepare information to present on four notecards, and make one visual aid for your presentation.</p>	<p><u>OTHER EVIDENCE</u></p> <ul style="list-style-type: none"> • Teacher observations • Graphs • Data collection (measurements) • Measurements / calculations 	<p><u>OTHER EVIDENCE</u> <u>Investigation Lab Reports</u></p> <ul style="list-style-type: none"> • Quizzes – vocabulary, characteristics of different ecosystems, adaptations of animal or plants 	<p><u>OTHER EVIDENCE</u></p> <ul style="list-style-type: none"> • Identify components in pictorial representation of food chains/webs. • Role play links in food chains/webs. 	<p><u>OTHER EVIDENCE</u></p> <ul style="list-style-type: none"> • Use of science inquiry & process skills (questioning, observing, predicting, testing, measuring, describing, explaining etc.) 	<p><u>OTHER EVIDENCE</u></p> <ul style="list-style-type: none"> • Students write about: → How would the water cycle be affected if dark clouds blocked the sun for a long time?
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- Writing about all hands-on activities
- Worksheet completion
- Quizzes/tests

- End of Module Assessment
- Diagrams of levers and pulley system

Investigation 1
Student Response
Sheet-Levers

Investigation 2
Student Response
Sheet-More
Leverage

Investigation 3
Response Sheet-
Pulleys

Investigation 4
Response Sheet-
Pulleys at Work

- Writing – Open ended responses:
- Explain how a particular animal or plant survive in a different environment?
- What is the impact of man (pollution, destruction, deforestation, etc) on different environments?
- How can we protect and conserve different environments?
- VENN Diagrams compare and contrast ecosystems or habitats:
- Brochure for visiting a certain ecosystem
- Model or poster of habitat
- Reflective Journal Responses
- Drawing of plant or animal structures allowing for adaptation in a specific environment.
- Terrestrial environments Journal
- Aquatic environments Journal

- Label missing links in food chains/webs.
- Diagrams of food chains/webs for different communities.
- Draw food webs and explain how plants/animals are linked.
- Diagrams and drawings of food chains/webs
- Quizzes
- Test

- Use of scientific vocabulary
- Journal entries for writing exercises
- Demonstrate & explain magnetic attraction and repulsion.
- Completed Investigations with schematic drawings & descriptions of how they work:
- simple circuit
- circuit with switch (open & closed)
- series and parallel circuits
- electromagnet and motor
- Venn Diagram comparing series and parallel circuits
- Schematic drawings labeled of all circuit components and pathways
- Writing about all hands-on activities
- Writing assignments:
- Explain the importance of electricity in our lives

- Do you think water would complete the cycle more quickly in the Artic or in Mexico? Explain why.
- Does the water cycle continue at night when the sun is not shining? Why or why not?
- What do you think might happen if the only precipitation that fell from the atmosphere was snow?
- How does moving water in the water cycle affect everyone on earth?
- Drawings of water cycle labeling all parts
- Venn Diagrams
- Quizzes
- Measure the area of water that has evaporated when working with puddles of different volumes. Describe results.
- Measure the time it took to evaporate the same size puddles under different temperatures.

					<ul style="list-style-type: none"> • Describe what our life would be like without electricity. • Determine which motor circuit and other circuit drawings will work. • Determine which objects are magnetic & which materials are conductors of electricity. • Safety measures with electricity • End of Unit Test • <u>Performance Assessment</u> <u>FOSS:</u> <u>Magnetism:</u> Determine if 2 magnets are stronger than 1 using materials given. • <u>Performance Assessment</u> <u>FOSS:</u> <u>Electricity:</u> Drawing accurate Schematic drawings and describes magnetic field with the compass. • <u>Design a Flashlight</u> 	<p>Describe results.</p> <ul style="list-style-type: none"> • Lab Write-ups • End of Unit Test
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SKILLS						
	<ul style="list-style-type: none"> • Draw and label a diagram of the earth's layers. • Describe the forces within the earth's interior. • Investigate the volcanic activity with a model using a chemical reaction and forces. • Create models of types of volcanoes based on their characteristics. • Identify and describe these types of volcanoes. • Describe how a volcano forms. • Describe how an earthquake forms. • Determine where on earth and especially in the United States that we have a history of volcanic activity or earthquake activity. • Describe how mountains are formed. 	<ol style="list-style-type: none"> 1. Determine whether a force is a push or a pull. 2. Demonstrate pushes and pulls using the human body as a model. 3. Investigate balanced and unbalanced forces. 4. Investigate how the mass of an object can affect what type of force could be used to cause some motion. 5. Investigate how forces can cause the change in the direction or speed of the motion. 6. Measure the amount of force necessary to move objects with a spring scale. 7. Investigate various tools that can move objects or cause motion. 8. Use Newton's Law as a standard for measuring force. 9. Describe how tools can be used to create motion. <ul style="list-style-type: none"> • Use simple tools to move objects such as levers and pulleys. 	<ul style="list-style-type: none"> • Investigate changes in terrestrial environments • Describe the plants and animals for each ecosystem. • Describe the environmental conditions in each ecosystem. • Explain the adaptations of various plants and animals that enable them to survive in each ecosystem. • Compare the ecosystems of rainforest, mountains, forests, arctic tundra, grasslands, and desert. • Compare plants and animals in a land or water environment. • Investigate how an animal responds to a change in its habitat. • Describe how animals depend on other nonliving conditions for survival such as air, water, earth and space. 	<ul style="list-style-type: none"> • Identify the environmental requirements of living organisms • Describe characteristics of food chains/food webs • Identify the sources of food an animal has consumed. – dissect owl pellets to investigate the food sources eaten. • Sequence the feeding order among organisms in a food web. • Compare and contrast food chains in different ecosystems. • Identify missing links in food chains. • Analyze what happens to food chains if something happens to one or more of the organisms. • Construct food chains and food webs with a variety of living organisms. 	<ul style="list-style-type: none"> • Investigate and determine which objects or materials will attract to a magnet. • Classify objects that attract or don't attract to magnets. • Investigate what happens when 2 magnets are brought near each other. • Describe what causes 2 magnets to either attract or repel each other. • Investigate and draw the magnetic field of a magnet. • Investigate how to make a temporary magnet. • Investigate which materials allow magnetic force to act right through the materials. • Investigate objects that can be used to detect a magnetic force. 	<ul style="list-style-type: none"> • Investigate and describe the properties of water as a solid, liquid and a gas. • Draw and label the model of the water cycle and explain the processes. • Write about what happens when a raindrop travels through the water cycle. • Investigate and explain how heat affects the forms of precipitation. • Explain how the transfer of heat occurs in the water cycle. • Investigate and describe the effect of temperature on the rate of evaporation. • Investigate and describe how moving air helps water to evaporate. • Observe condensation and describe how it is formed.

<p>SKILLS</p>	<ul style="list-style-type: none"> • Describe the effects of earthquake damage to the environment. • Describe the effects of volcanic activity on the environment. 		<ul style="list-style-type: none"> • Describe what happens to living and nonliving things when a natural disaster occurs. • Investigate changes in an aquatic environment • Measure growth of plants and reproductive rate of brine shrimp • Summarize why particular plants and animals live in an ecosystem. 		<ul style="list-style-type: none"> • Measure the strength of the force of attraction between two objects and graph results. • Use a magnet to separate components of a mixture where one material is magnetic. • Describe the components of an electrical circuit and the function of each. • Build and compare simple circuits. • Design and test open and closed circuits. • Test and classify examples of conductors or insulators of electrical energy. • Draw and label a simple circuit schematic diagram. • Design different types of electrical circuits that light bulbs. • Design a circuit that can generate sound. 	<ul style="list-style-type: none"> • Investigate then compare & contrast evaporation of a liquid on a warm, sunny day with evaporation on a cool, cloudy day. • Identify common examples of evaporation and condensation found in our environment. • Investigate & describe what happens when water is poured through 2 different earth materials. • Investigate & describe the interactions between water and earth materials using a stream table. • Relate stream table results to natural processes. • Investigate and Compare the changes in land created by water flowing over and through the soil using a stream table.
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SKILLS					<ul style="list-style-type: none">• Identify examples of how electricity can create energy (light, sound and mechanical).• Build and compare/contrast series and parallel circuits.• Describe the advantages of using either a series, or parallel circuit and how/where they are used.• Determine the effect of magnets on electricity.• Build, test and graph the results of measuring the strength of an electromagnet.• Describe how to make an electromagnet and what can influence the strength.	<ul style="list-style-type: none">• Design & build models of landscapes, predicting how a landscape will affect the flow of water & the resulting effect to the land.• Describe how we can affect the processes of erosion (ex. Farming, beaches etc).
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