

## Thomaston Public Schools - 7th Grade Science Curriculum Overview and Pacing Guide

Course Title: 7th Grade Science		
School: Thomaston High School	Grade: 7	Curriculum Pacing: 36 weeks
<b>Unit One: Energy</b>	<b>Unit Two: Plate Tectonics</b>	<b>Unit Three: Earth's Cycles</b>
<b>Unit Pacing: 6 weeks</b>	<b>Unit Pacing: 6 weeks</b>	<b>Unit Pacing: 6 weeks</b>
<p><b>Unit Overview:</b> In this unit, students will explore the different types of energy and energy transformation. They will perform experiments, design energy efficient objects, and design and build rockets. In particular, students will explore potential energy and how to change the amount of energy stored in a system. They will also investigate kinetic energy and the factors that affect it. Then they will put all of that together and figure out how energy can be changed.</p>	<p><b>Unit Overview:</b> In this unit, students will investigate and explore geologic processes that shape the earth. Students will investigate the costs and benefits of such cataclysmic events as an earthquake or volcanic eruptions in order to recognize the process of creating new earth. They will also explore the processes of weathering and erosion to determine what happens to land that is worn away over time. Through these investigations and explorations, students will recognize the dynamic systems that make up our home planet.</p>	<p><b>Unit Overview:</b> In this unit, students will explore two of the Earth's cycles and how those cycles can affect their daily lives. They will develop and use models, construct scientific explanations, and perform scientific experiments to discover how each cycle works and how it affects resource availability for society.</p>
<p><b>Compelling Questions</b></p> <ol style="list-style-type: none"> <li>Where does the energy we use to power our houses come from?</li> <li>How can I "make" energy?</li> </ol>	<p><b>Compelling Questions</b></p> <ol style="list-style-type: none"> <li>How does my world change over time?</li> <li>Why does the world look the way it does?</li> </ol>	<p><b>Compelling Questions</b></p> <ol style="list-style-type: none"> <li>How does my world change over time?</li> <li>How can I reduce my personal impact on the planet?</li> </ol>
<p><b>Priority Learning Targets</b></p> <ol style="list-style-type: none"> <li>I can develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system. (MS-PS3-2; PS3.A; PS3.C)</li> </ol>	<p><b>Priority Learning Targets</b></p> <ol style="list-style-type: none"> <li>I can construct an evidence based argument for how geoscience processes have changed Earth's surface at varying time and spatial scales. (MS-ESS2-2; DCI ESS2.A; DCI ESS2.C)</li> </ol>	<p><b>Priority Learning Targets</b></p> <ol style="list-style-type: none"> <li>I can develop a model to describe the cycling of water through Earth's systems driven by energy of the sun and gravity. (MS-ESS2-4; DCI ESS2.C)</li> </ol>

<p>2. I can construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object. (MS-PS3-1; PS3.A)</p> <p>3. I can construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object using evidence gathered through investigation. (MS-PS3-4; MS-PS3-5; PS3.A; PS3.B)</p>	<p>2. I can analyze and interpret data based on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide past evidence of the plate motions. (MS-ESS2-3; DCI ESS1.C; DCI ESS2.B)</p> <p>3. I can analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects. (MS-ESS3-2; DCI ESS3.B)</p>	<p>2. I can develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process. (MS-ESS2-1; DCI ESS2.A)</p> <p>3. I can construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes. (MS-ESS3-1; DCI ESS3.A)</p>
<p><b>Unit Four: History of the Earth</b></p>	<p><b>Unit Five: Basics of Life</b></p>	<p><b>Unit Six: Body Systems</b></p>
<p><b>Unit Pacing: 6 weeks</b></p>	<p><b>Unit Pacing: 6 weeks</b></p>	<p><b>Unit Pacing: 6 weeks</b></p>
<p><b>Unit Overview:</b> In this unit, students will explore the history of the earth through rock strata and the fossil record. They will look for patterns and correlations to document changes in the environment and resulting changes in the organisms present during that geological.</p>	<p><b>Unit Overview:</b> This unit is all about the basic building block of life, the cell. Students will investigate the cell theory and the parts of the cell. They will create a device to observe cells and practice with the modern microscope. Through these investigations and experiences, students will understand that they, and all other living things, are made of cells and they will understand the basics of how those cells function.</p>	<p><b>Unit Overview:</b> In this unit, students will explore their body systems through experimentation, biomedical engineering, and modeling to understand how they are able to live. They will investigate movement, digestion, energy production, response to stimuli, and memory production.</p>
<p><b>Compelling Questions</b></p> <p>1. How do I know the age of the Earth?</p> <p>2. Where do I come from?</p>	<p><b>Compelling Questions</b></p> <p>1. What makes me alive?</p> <p>2. How can I tell if something is alive or not?</p>	<p><b>Compelling Questions</b></p> <p>1. How does my body work?</p> <p>2. Why do I need food and water to stay alive?</p> <p>3. Why do I react differently in one situation than I do in another?</p>
<p><b>Priority Learning Targets</b></p> <p>1. I can investigate rock strata to determine a</p>	<p><b>Priority Learning Targets</b></p> <p>1. I can perform an investigation to discover</p>	<p><b>Priority Learning Targets</b></p> <p>1. I can conduct research and investigate to</p>

<p>pattern. (MS-ESS1-4; DCI ESS1.C)</p> <p>2. I can construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history. (MS-LS4-1; DCI LS4.A)</p> <p>3. I can analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth. (MS-ESS1-4; DCI ESS1.C)</p>	<p>the characteristics and building blocks of living things. (MS-LS1-1; DCI LS1.A)</p> <p>2. I can develop and cell theory and conduct an investigation to determine its accuracy, including how cells are organized, how they are structured, and how they interact with the living world. (MS-LS1-1; DCI LS1.A)</p> <p>3. I can develop and use a model to describe the function of a cell as a whole and ways the parts of cells contribute to the function. (MS-LS1-2; DCI LS1.A)</p>	<p>develop a supported argument about the human body's subsystems and cell structures and how they interact with one another. (MS-LS1-3; LS1.A)</p> <p>2. I can develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism. (MS-LS1-7; LS1.C; PS3.D)</p> <p>3. I can gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories (MS-LS1-8; LS1.D)</p>
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