

Marietta City Schools Pacing Guide

Subject: Science

Grade Level: Seventh

Time Frame: Semester Long / Year Long

Month / Week	CCS Benchmarks	Skills/Activities	Resources	Assessment
Aug		Pre-testing		
Aug-Sep Year Long	<p>Thinking Like a 21st Century Scientist/Engineer</p> <p>Literacy in Science & Tech (RST)</p>	<p><u>Intro to Science, Technology, and Engineering</u> Science Career Icebreaker *SLO Pre Assessments *Newsela “Sum it Up” Intro (RST) *Lab Safety Procedures/Equipment *DASAW (Draw a Scientist at Work) *Scientific Method, Observations & Inferences *Learning Style Inventory</p> <p>*These skills/topics should continue throughout the year</p>	<p>Teacher created handouts: “Sum it Up”, Scientific Method Foldables</p> <p>Teacher Website: mmstigerscience@weebly.com</p> <p>Other Resources: https://www.edutopia.org/multiple-intelligences-assessment http://www.educationplanner.org/students/self-assessments/learning-styles.shtml https://newsela.com/</p>	Formative - Ongoing
Sep -Nov	<p>Topic : <u>Cycles of Matter and Flow of Energy</u></p>	<p>Skills Students should recognize an ecosystem is composed of linked and fluctuating interactions between biotic and abiotic factors. Given adequate resources and an absence of disease or predators, populations of organisms in ecosystems increase at rapid rates. Finite resources and other factors limit population growth. As one population proliferates, it is held in check by one or more environmental factors (e.g., depletion of food or nesting sites, increased loss to predators, invasion by parasites). If a natural disaster such as a flood or fire occurs, the damaged ecosystem is likely to recover in a succession of stages that eventually results in a system similar to the original one.</p> <p>Activities Monarch Butterfly PBS (Problem Based Scenario) Study of Local Spider Population Study of Human Population (if time permits) Graphing populations</p>	<p>Teacher created handouts: “Sum it Up”, KWL charts, Spider Lab, Google Slides / PowerPoint Presentation, Cloze Notes, Monarch PBS</p> <p>Teacher Website: mmstigerscience@weebly.com</p> <p>Other Resources: Journey North Ohio Spider Survey https://newsela.com/</p>	<p>Formative - Ongoing</p> <p>Summative - Vocabulary Quiz</p> <p>Summative - End of Unit Quiz</p> <p>Summative - Project Monarch PBS</p> <p>Summative - Research Project Endangered /Threatened Species</p>

Nov	<p>Topic : <u>Cycles of Matter and Flow of Energy (cont...)</u></p>	<p><u>Skills</u> Students should recognize that as matter is cycled within the environment, it promotes sustainability. The emphasis is not on food webs, but on the transfer of matter and energy between organisms. The total amount of matter and energy remains constant in an ecosystem, even though the form and location undergo continual change. The concept of conservation of matter (introduced in PS grade 4) and conservation of energy are applied to ecosystems. An energy pyramid graphic can illustrate the flow of energy. At each stage in the transfer of energy within an ecosystem, some energy is stored in newly synthesized molecules and some energy is lost into the environment as heat produced by the chemical processes in cells. The elements that make up the molecules of living things are continuously recycled. Energy rich molecules that are passed from organism to organism are eventually recycled by decomposers back into mineral nutrients usable by plants.</p> <p><u>Activities</u> Vocabulary Review of Food Webs & Food Chains Analyzing / Creating Energy Pyramids</p>	<p>Teacher created handouts: “Sum it Up”, Notes, 3D Pyramid, Presentations, Worksheets</p> <p>Teacher Website: mmstigerscience@weebly.com</p> <p>Other Resources: https://newsela.com/</p>	<p>Formative - Ongoing</p> <p>Summative - Vocabulary Quiz</p> <p>Summative - Tracking the Flow of Energy in a Givan Biome</p> <p>Summative - End of Unit Quiz</p>
Dec	<p>Topic: <u>Conservation of Mass and Energy</u></p> <p>Topic: <u>Cycles and Patterns of Earth and the Moon</u></p>	<p><u>Skills</u> Students should identify all matter as a pure substance (element or compound) or a mixture. Mixtures are materials composed of two or more substances that retain their separate atomic compositions, even when mixed (e.g., water and sugar can be mixed together thoroughly at the molecular level but the water particles and sugar particles remain separate). Elements are organized into groups based on their properties (including melting and/or boiling points) and position on the periodic table. These groups include metals, non-metals, and gases that are almost completely nonreactive. The nonreactive gases exist primarily as elements and do not react to form many compounds. Most metals are malleable, have high melting points, are usually solid at room temperature and are good conductors of heat and electricity. Nonmetals are poor conductors of heat and electricity, are usually gases at room temperature and, as solids, tend to be dull and brittle.</p> <p><u>Skills</u> Students should recognize the atmosphere is held to the Earth by the force of gravity. There are defined layers of the atmosphere that have specific properties, such as temperature, chemical composition and physical characteristics. Gases in the atmosphere include nitrogen, oxygen, water vapor, carbon dioxide and other trace gases.</p>	<p>Teacher created handouts: “Sum it Up”, Notes, Coloring the Periodic Table</p> <p>Teacher Website mmstigerscience@weebly.com</p> <p>Other Resources: https://newsela.com/</p>	<p>Formative - Ongoing</p> <p>Summative - Vocabulary Quiz</p> <p>Summative - End of Unit Quiz</p> <p>Summative - Element Superhero/Villain Project</p>

		<p>Biogeochemical cycles illustrate the movement of specific elements or molecules (such as carbon or nitrogen) through the lithosphere, biosphere, hydrosphere and atmosphere.</p> <p>Activities Coloring the Periodic Table Element Superhero/Villain Project</p>		
Jan	<p>Topic : <u>Cycles of Matter and Flow of Energy</u> (cont...)</p> <p>Topic: <u>Conservation of Mass and Energy</u></p>	<p>Skills Students should understand the use of light energy to make food is called photosynthesis. The breakdown of food to release the stored energy is called respiration. General formulas are appropriate at this grade level, because atoms and molecules are taught in grade 6. Details of both processes are not grade appropriate. In grade 6, cellular organelles are introduced. It is appropriate to reinforce that the chloroplast (the plant cell organelle that contains chlorophyll) captures the sun's energy to begin the process of converting the energy from the sun into sugars and sugar polymers, such as starch.</p> <p>Skills Students should recognize a system is separated from its surroundings by either a physical or mental boundary. An isolated system is one that does not interact with its surroundings. Matter and energy cannot get into or out of an isolated system. Most systems on Earth are open systems. Matter and energy can be transferred into or out of an open system. If energy appears to be gained or lost, it has just transformed or transferred into a different system. Examples of systems include ecosystems, the atmosphere, the hydrosphere, the solar system and the human body.</p> <p>Activities Photosynthesis Labs (Elodea and Onion) Cellular Respiration and Exercise Lab Frog Dissection (Cellular Respiration and Closed System) - <i>if time permits</i></p>	<p>Teacher created handouts: "Sum it Up", Notes, Lab materials and handouts,</p> <p>Teacher Website: mmstigerscience@weebly.com</p> <p>Other Resources: https://newsela.com/</p>	<p>Formative - Ongoing</p> <p>Summative - Vocabulary Quiz</p> <p>Summative - End of Unit Quiz</p>
Feb	<p>Topic : <u>Cycles of Matter and Flow of Energy</u> (cont...)</p> <p>Topic: <u>Cycles and Patterns of Earth and the Moon</u></p>	<p>Skills The students should understand the pH scale has a range of 0-14 and is used to measure the acidity or alkalinity of a compound. At the seventh-grade level, pH tests must be conducted on a variety of substances. The properties of the compounds that are acidic (below 7 on the pH scale), neutral (7 on the pH scale) or basic (above 7 on the pH scale) must be compared and evaluated. Acidity and alkalinity values must be related and connected to the natural world, as pH values are used to measure water, soil and air quality (e.g., sulfuric acid in the atmosphere can form acidic precipitation which can impact the acidity of a stream and the living organisms in the stream).</p>	<p>Teacher created handouts: "Sum it Up", Notes, Textbook Questions</p> <p>Textbook: Earth's Waters</p> <p>Teacher Website: mmstigerscience@weebly.com</p> <p>Other Resources: https://newsela.com/</p>	<p>Formative - Ongoing</p> <p>Summative - Vocabulary Quiz</p> <p>Summative - End of Unit Quiz</p>

		<p>Skills The students should understand the different pieces of the hydrologic cycle (e.g., properties of water, changes of state, relationships of water to weather, effects of water on Earth's surface). The movement of water through the spheres of Earth is known as the hydrologic cycle. As water changes state and energy is transferred, it cycles from one sphere into another (e.g., water transfers from the hydrosphere to the atmosphere when evaporation occurs). Groundwater and surface water quality are important components of the hydrologic cycle. The porosity and permeability of the rock and/or soil (grade 6) can affect the rate at which the water flows. The pattern of the cycling illustrates the relationship between water, energy and weather. The movement of water in the cycle also can move contamination through each of the spheres. Relating water flow to geographic and topographic landforms and/or features leads to an understanding of where water flows and how it moves through the different spheres.</p> <p>Activities Local Water Quality Testing Drawing the Water Cycle Porosity and Permeability Activity City Stream/Drainage Movement A Drop's Journey Exploring the Water Cycle Game</p>		
March -April		State Testing / SLO		
March	Topic: <u>Cycles and Patterns of Earth and the Moon (cont...)</u>	<p>Skills The students should build upon earlier concepts of weather and the physical properties of air and water and their changes to the relationship of atmospheric and oceanic currents and climate. The causes of moving currents in the atmosphere and ocean must be connected to thermal energy, density, pressure, composition and topographic/geographic influences (e.g., continental mountains, ocean ridges). Studies also should include specific current patterns in both the atmosphere and the ocean that are mapped and documented through data. Contemporary studies regarding global climate must be based on facts and evidence. This content statement is connected to the LS grade 7 content pertaining to biomes and the climatic zones of Earth.</p> <p>Activities Mapping Rubber Ducker Movements Analyze Climate in Relation to Currents</p>	<p>Teacher created handouts: "Sum it Up", Notes, Worksheets</p> <p>Teacher Website: mmstigerscience@weebly.com</p> <p>Other Resources: https://newsela.com/</p>	<p>Formative - Ongoing</p> <p>Summative - Vocabulary Quiz</p> <p>Summative - End of Unit Quiz</p>

<p>April</p>	<p>Topic: <u>Cycles and Patterns of Earth and the Moon (cont...)</u></p>	<p>Skills The students should understand the moon's orbit and its change of position relative to the Earth and sun result in different parts of the moon being visible from Earth (phases of the moon). A solar eclipse is when Earth moves into the shadow of the moon (during a new moon). A lunar eclipse is when the moon moves into the shadow of Earth (during a full moon). Gravitational force between the Earth and the moon causes daily oceanic tides. When the gravitational forces from the sun and moon align (at new and full moons) spring tides occur. When the gravitational forces of the sun and moon are perpendicular (at first and last quarter moons), neap tides occur.</p> <p>Activities 3D Models Webquest</p>	<p>Teacher created handouts: "Sum it Up", Notes, Worksheets</p> <p>Teacher Website: mmstigerscience@weebly.com</p> <p>Other Resources: https://newsela.com/</p>	<p>Formative - Ongoing</p> <p>Summative - Vocabulary Quiz</p> <p>Summative - End of Unit Quiz</p>
<p>May</p>	<p>Topic: <u>Conservation of Mass and Energy</u></p>	<p>Skills The students should understand energy can be transferred through a variety of ways. Mechanical energy can be transferred when objects push or pull on each other over a distance. Electromagnetic waves transfer energy when they interact with matter. Thermal energy can be transferred through radiation, convection and conduction. Electrical energy transfers when an electrical source is connected in a complete electrical circuit to an electrical device.</p> <p>Activities 3D Models (Slinky Lab) Webquest</p>	<p>Teacher created handouts: "Sum it Up", Notes, Worksheets</p> <p>Teacher Website: mmstigerscience@weebly.com</p> <p>Other Resources: https://newsela.com/</p>	<p>Formative - Ongoing</p> <p>Summative - Vocabulary Quiz</p> <p>Summative - End of Unit Quiz</p>
<p>Year Long</p>	<p>Topic: <u>Conservation of Mass and Energy</u></p>	<p>Skills The students should understand when energy is transferred from one system to another, the quantity of energy before transfer equals the quantity of energy after transfer. When energy is transformed from one form to another, the total amount of energy remains the same.</p>		