

<b>Subject and Grade:</b>	7th Grade Science	<b>School Year:</b>	2023 - 2024
<b>Unit Title:</b>	"What Makes Up Earth's Natural Resources?"	<b>Author/s:</b>	S. Lanning

NYS Next Gen Learning Standards	Essential Question/Big Ideas
<b>Module 7.1</b> MS-ESS2-1 MS-ESS3-1 MS-PS1-1 MS-PS1-2 MS-PS1-4 MS-PS1-6 MS-ETS1-1 MS-ETS1-2	<ul style="list-style-type: none"> <li>• What are Natural Resources?</li> <li>• What makes up gasses?</li> <li>• What makes paper change color?</li> <li>• What does it mean that odors are "in" the air?</li> <li>• What makes up minerals and rock?</li> <li>• What are all metals made up of?</li> <li>• What happens when substances are heated and cooled?</li> <li>• What happens to molecules as substances melt and freeze?</li> <li>• How can we use phase changes to separate materials?</li> <li>• How can our model apply to everyday life?</li> </ul>

Brief Unit Summary	Content Vocabulary
During this module, students focuses on two overarching ideas: 1) Planet Earth is made up of natural resources that humans rely on and use in a variety of ways, and 2) Each of these resources, regardless of state of matter, is made up of atoms, joined together in particular configurations called molecules. Students explore key concepts, especially the particle nature of matter, in the context of both physical and Earth sciences. Through investigations, students revise and	Atom Compression Condensation Consensus Constraints Criteria Crystal Diamonds

<p>generalize their model to include liquids and solids, all of Earth's natural resources, and all matter.</p>	<p>Engineering Evaporation Expansion Feldspar Granite Graphite Humid Mass Matter Mica Mixture Model Molecules Natural Resources Paraffin Phase of Matter Quartz Scale State of Matter Substance Volume Water Vapor</p>
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Content Skills or Learning Targets	Assessments (Pre-Assessments, Formative, and Summative)	Timeframe
<ol style="list-style-type: none"> <li>1. Asking questions and defining problems</li> <li>2. Developing and using models</li> <li>3. Planning and carrying out investigations</li> <li>4. Analyzing and interpreting data</li> <li>5. Using mathematics and computational thinking</li> <li>6. Constructing explanations and designing solutions</li> <li>7. Engaging in argument from evidence</li> <li>8. Obtaining, evaluating, and communicating information</li> </ol>	<ul style="list-style-type: none"> <li>• Handouts</li> <li>• Group activities</li> <li>• Lab Experiments</li> <li>• Readings</li> <li>• Activities</li> <li>• Quiz</li> <li>• Test</li> </ul>	<p>September – November ~8 Weeks</p>

Differentiation/Enrichment	Materials	Resources
	3 state mandated Investigations will be interspersed through the year: “It’s Alive?” “All Mixed Up” “Cool It”	southerncayuga.iqwst.com

<b>Subject and Grade:</b>	<b>7th Grade Science</b>	<b>School Year:</b>	2023 - 2024
<b>Unit Title:</b>	<b>“How Can I Make New Substances from Old Substances?”</b>	<b>Author/s:</b>	S. Lanning

NYS Next Gen Learning Standards	Essential Question/Big Ideas
<b>Module 7.2</b> MS- PS1-1 MS-PS1-2 MS-PS1-3 MS-PS1-4 MS-PS1-5 MS-PS1-6 MS-ETS1-1 MS-ETS1-2 MS-ETS1-3	<ul style="list-style-type: none"> <li>• How do different substances compare?</li> <li>• Can we make new substances from old substances?</li> <li>• Do different substances dissolve in the same liquid?</li> <li>• Do substances melt at the same temperature?</li> <li>• What other properties can distinguish one substance from another substance?</li> <li>• How are fat and soap different substances?</li> <li>• What happens to properties when I combine substances?</li> </ul>

	<ul style="list-style-type: none"> <li>• Is burning a chemical reaction?</li> <li>• Is this a new substance?</li> <li>• What happens when I see different processes?</li> <li>• Can I make soap from fat?</li> <li>• Can I make plastic from everyday substances?</li> <li>• Does mass change in a chemical reaction?</li> <li>• Is my soap a new substance?</li> <li>• How does my soap compare or how can I improve my soap?</li> </ul>
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Brief Unit Summary	Content Vocabulary
<p>This module builds on core science concepts such as the particle nature of matter and substances and their properties, emphasizing students designing investigations and figuring out and explaining phenomena. Students engage in several investigations that include molecular modeling experiences that support developing a deeper molecular understanding of phase changes, mixtures, and chemical reactions. Students investigate what happens to the mass in a chemical reaction in an open and a closed system, thus experiencing conservation of matter.</p>	<ul style="list-style-type: none"> <li>• Matter</li> <li>• Physical property</li> <li>• Chemical property</li> <li>• Insulator</li> <li>• Elements</li> <li>• Compounds</li> <li>• Molecules</li> <li>• Chemical bond</li> <li>• Substance</li> <li>• Mixtures</li> <li>• Homogeneous</li> <li>• Heterogeneous</li> </ul>

Content Skills or Learning Targets	Assessments (Pre-Assessments, Formative, and Summative)	Timeframe
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1. Asking questions and defining problems 2. Developing and using models 3. Planning and carrying out investigations 4. Analyzing and interpreting data 5. Using mathematics and computational thinking 6. Constructing explanations and designing solutions 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	<ul style="list-style-type: none"> <li>• Handouts</li> <li>• Group activities</li> <li>• Lab Experiments</li> <li>• Readings</li> <li>• Activities</li> <li>• Quiz</li> <li>• Test</li> </ul>	November - January ~8 weeks
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	3 state mandated Investigations will be interspersed through the year: “It’s Alive?” “All Mixed Up” “Cool It”	southerncayuga.iqwst.com

<b>Subject and Grade:</b>	<b>7th Grade Science</b>	<b>School Year:</b>	2023 - 2024
<b>Unit Title:</b>	<b>“What Do I Have in Common with Planet Earth?”</b>	<b>Author/s:</b>	S. Lanning

NYS Next Gen Learning Standards	Essential Question/Big Ideas
<b>Module 7.3</b> MS-LS1-6 MS-LS1-7	<ul style="list-style-type: none"> <li>• How are food and energy related?</li> <li>• Do all foods provide the same amount of energy?</li> </ul>

MS-ESS2-1 MS-ESS2-2 MS-ESS2-3 MS-ESS3-2 MS-PS1-1 MS-PS1-2 MS-ETS1-3 MS-ETS1-4	<ul style="list-style-type: none"> <li>• How does food provide building materials?</li> <li>• How are food molecules built up and stored?</li> <li>• How do plants get energy?</li> <li>• How do burning food inside and outside the body compare?</li> <li>• How do food molecules provide my cells with energy?</li> <li>• How does the Earth change?</li> <li>• Did Earth always look like this?</li> <li>• What is the composition of the Earth's surface?</li> <li>• What makes Earth's plates move?</li> <li>• How do plates interact with each other?</li> <li>• What causes volcanoes?</li> <li>• How are plates moving?</li> <li>• How does new plate material form?</li> <li>• What do we know about plate tectonics?</li> <li>• Modeling Earthquake-proof structures?</li> </ul>
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Brief Unit Summary	Content Vocabulary
This module explores aspects of the human system and large-scale changes of Earth's system in a manner that enables students to ultimately determine both are changing systems through which matter cycles and energy flows. Students investigate the chemical reactions and energy transformations during photosynthesis and	<ul style="list-style-type: none"> <li>• Divergent Boundary</li> <li>• Convergent Boundary</li> <li>• Collisional Boundary</li> <li>• Transform Boundary</li> <li>• Asthenosphere</li> </ul>

cellular respiration, and plate tectonics. Students analyze patterns in the earthquake and volcanic activity data to understand the nature of Earth's plates. The module culminates in students writing an evidence-based explanation that draws connections among Earth and human systems as dynamic and always interrelated.	<ul style="list-style-type: none"> <li>• Crust.</li> <li>• Hot spot.</li> <li>• Lava</li> <li>• Lithosphere</li> <li>• Magma</li> <li>• Mantle</li> <li>• Ocean trench</li> <li>• Plate boundary</li> <li>• Tectonic plate</li> <li>• Transect</li> </ul>
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Content Skills or Learning Targets	Assessments (Pre-Assessments, Formative, and Summative)	Timeframe
1. Asking questions and defining problems 2. Developing and using models 3. Planning and carrying out investigations 4. Analyzing and interpreting data 5. Using mathematics and computational thinking 6. Constructing explanations and designing solutions 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information	<ul style="list-style-type: none"> <li>• Handouts</li> <li>• Group activities</li> <li>• Lab Experiments</li> <li>• Readings</li> <li>• Activities</li> <li>• Quiz</li> <li>• Test</li> </ul>	January - March ~ 8 Weeks

Differentiation/Enrichment	Materials	Resources
	3 state mandated Investigations will be interspersed through the year: “It’s Alive?” “All Mixed Up”	southern cayuga.iqwst.com

	“Cool It”	
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<b>Subject and Grade:</b>	7th Grade Science	<b>School Year:</b>	2023 - 2024
<b>Unit Title:</b>	“What Can Cause Population Change?”	<b>Author/s:</b>	S. Lanning

NYS Next Gen Learning Standards	Essential Question/Big Ideas
<p><b>Module 7.4</b></p> <p>MS-LS1-6</p> <p>MS-LS1-7</p> <p>MS-LS2-1</p> <p>MS-LS2-2</p> <p>MS-LS2-3</p> <p>MS-LS2-4</p> <p>MS-LS2-5</p> <p>MS-ESS2-1</p> <p>MS-ESS2-1</p> <p>MS-ETS1-1</p> <p>MS-ETS1-2</p> <p>MS-ETS1-4</p>	<p>What causes a population to change?</p> <p>What’s going on here?</p> <ul style="list-style-type: none"> <li>• Why do organisms need food?</li> <li>• Where do organisms get their food?</li> <li>• Trout: Predator or Prey?</li> <li>• Why should we care about an invader?</li> <li>• Could the sea lamprey have a major impact as a predator?</li> <li>• Structure and function in all organisms?</li> <li>• How can an invader affect an ecosystem?</li> <li>• How does the sea lamprey affect the trout?</li> <li>• What else can affect a population?</li> <li>• How do abiotic factors affect trout?</li> <li>• Great Lakes Sea Lamprey Control.</li> <li>• How can population change be prevented?</li> </ul>



	<ul style="list-style-type: none"> <li>• Trapping water pollution.</li> </ul>
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Brief Unit Summary	Content Vocabulary
<p>Students investigate the biosphere during this module, building an understanding of how organisms depend on each other and how they can be affected by events that disrupt ecosystem function. This module focuses on organisms' needs for survival, what happens when those needs are not met, and how humans can mitigate changes. Students learn about why food is important, investigate why different structures are needed and how they are used by organisms to eat and reproduce. Students work to solve a mystery in which they investigate an invasive species and investigate abiotic factors that affect ecosystems.</p>	<ul style="list-style-type: none"> <li>• Allele</li> <li>• Analogous structure</li> <li>• Embryology</li> <li>• Fossils</li> <li>• Founder Effect</li> <li>• Genetic Drift</li> <li>• Gradualism</li> <li>• Homologous Structure</li> <li>• Isolating Mechanisms</li> <li>• Migration (genetic)</li> <li>• Mutation</li> <li>• Natural Selection</li> <li>• Punctuated Equilibrium</li> <li>• Speciation</li> <li>• Vestigial Structure</li> </ul>

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Differentiation/Enrichment	Materials	Resources
	3 state mandated Investigations will be interspersed through the year: “It’s Alive?” “All Mixed Up” “Cool It”	<a href="http://southerncayuga.iqwst.com">southerncayuga.iqwst.com</a>