

## Grade 7 Science Curriculum Map

Topic	GLCEs/ Common Core Literacy Standards	Big Ideas (Key Concepts)	Skills /Vocabulary	Assessment Summative	Resources
Scientific Process Skills	S.IP.07.11 S.IP.07.12 S.IP.07.13 S.IP.07.14 S.IP.07.15 S.IP.07.16 S.IA.07.11 S.IA.07.12 S.IA.07.13 S.IA.07.14 S.IA.07.15	<p>Generate scientific questions.</p> <p>Conduct scientific investigations using appropriate tools &amp; techniques.</p> <p>Properly write scientific hypotheses.</p> <p>Test a hypothesis showing an understanding of variables and methods.</p> <p>Identify patterns in data.</p> <p>Use evidence to support a conclusion drawn from a scientific investigation.</p> <p>Evaluate scientific processes and/or conclusions being able to determine possible sources of error.</p>	<p><u>Vocabulary:</u>            scientific method            experimental design            scientific question            hypothesis            independent variable            dependent variable            controlled variable            constants            charts            tables            graphs            data            conclusions            evidence            analyze            validity</p> <p><u>Skills</u>            Design &amp; conduct scientific experiments            Analyze data            Use proper scientific tools            Lab safety            Evaluate for validity</p>	<p>Design and conduct a scientific experiment</p> <p>Write a lab report using proper scientific format</p>	<p><i>Teaching the Scientific Method: Instructional Strategies to Boost Student Understanding</i></p> <p><i>Teaching Science Process Skills</i></p> <p>Internet resources</p> <p>Shared departmental resources</p>

<p>Waves &amp; Energy</p>	<p>P.EN.M.3 P.EN.07.31 P.EN.07.32 P.EN.07.33 P.EN.M.6 P.EN.07.61 P.EN.07.62</p>	<p>Waves are produced through vibrations.</p> <p>Waves transfer energy when they interact with matter.</p> <p>Nuclear reactions that take place in the sun produce heat and light.</p> <p>A fraction of the light energy from the sun provides energy to heat the Earth.</p>	<p><u>Vocabulary:</u> wavelength sun's radiation seismic wave water wave light energy sound wave energy vibration matter waves energy transfer nuclear reactions solar energy transform waves transverse waves transfer crest trough amplitude frequency erosion greenhouse effect medium</p> <p><u>Skills:</u> diagramming modeling cause and effect</p>	<p>Pre-test</p> <p>concept map</p> <p><b>Analysis Questions over Act. 1-3</b></p> <p><b>Type 2 Writing: Mechanical Waves (Text Types &amp; Purposes 2d) (See Collin's Writing Bank)</b></p> <p>Waves Unit Test</p> <p>Diagram Transverse &amp; Longitudinal waves</p>	<p>SEPUP</p> <p><i>The Science Teacher's Activity-A-Day Book</i></p> <p>United Streaming: Elements of Physics (Waves: Sound &amp; Electromagnetism)</p> <p>Prentice Hall: <i>Inside the Earth &amp; Interactions of Sound &amp; Light Waves</i></p> <p>Bill Nye: <i>Color &amp; Light, Waves</i></p>
<p>Physical &amp; Chemical Properties and Changes in Matter</p>	<p>P.PM.M1 P.PM.07.11 P.PM.M.2 P.PM.07.21 P.PM.07.22 P.PM.07.23</p>	<p>Matter is made up of atoms and molecules that are represented through models.</p> <p>Elements are chemical substances that make up all</p>	<p><u>Vocabulary:</u> atom atomic arrangement chemical change chemical properties of compounds</p>	<p><u>Formative</u></p> <ol style="list-style-type: none"> <li>Stand up, Pair up</li> <li>Matchbook of the elements (See Engage/Explore)</li> <li>Literacy Strategies</li> </ol>	<p>Prentice Hall: <i>Changes in Matter</i></p> <p>Bill Nye videos: 1. Changes in Matter 2. Chemical</p>

	<p>P.PM.07.24 P.CM.M.2 P.CM.07.21 P.CM.07.22 P.CM.07.23</p>	<p>other substances and are composed of one kind of atom.</p> <p>Elements are organized on the Periodic Table in families.</p> <p>Physical and chemical properties identify substances and determine when a chemical change has occurred.</p>	<p>chemical reactions closed system molecule nonmetal reactive gas chemical properties of elements products reactants density boiling point conductivity pH paper/ meter elements periodic table physical change compound classification of substances conservation of mass graduated cylinder physical properties of elements physical properties of compounds phase change</p> <p><u>Skills</u> Reading charts and tables Drawing conclusions based on evidence observation vs. inference</p>	<p>(KWL, anticipatory set) 4. Models-illustrate the structure of molecules using models (water, carbon dioxide, salt) 5. Book of elements 6. <b>Collin's Writing Type 1 &amp; 2 (See Collin's Writing Bank)</b></p> <p><u>Summative</u> 1. <b>Type 3: Write a scientific explanation: Does an element's position on the Periodic Table of Elements give us important information? (See Collin's Writing Bank)</b> 2. Create a T-chart with physical and chemical properties of elements and compounds (boiling point, density, color, conductivity, reactivity) 3. <b>Students create an "Alphabook of the Elements" for a younger audience that:</b></p>	<p>Reactions 3. Atoms</p> <p><i>Science Teacher's Activity-A-Day Book</i></p>
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				<p>a. explain the importance of elements in our lives, and gives an explanation of how the Periodic Table of Elements is organized and features one or more elements, or</p> <p>b. details one element in detail (perhaps turning it into a cartoon character), or</p> <p>c. had one page for each element</p>	
Structures & Processes of Living Things	<p>L.OL.M.2</p> <p>L.OL.M.21</p> <p>L.OL.M.22</p> <p>L.OL.M.23</p> <p>L.OL.M.24</p> <p>L.OL.M.3</p> <p>L.OL.M.31</p> <p>L.OL.M.32</p> <p>L.OL.M.6</p> <p>L.OL.07.61</p> <p>L.OL.07.62</p> <p>L.OL.07.63</p> <p>P.EN.M.4</p> <p>P.EN.07.43</p> <p>L.HE.M.2</p> <p>L.HE.07.21</p> <p>L.HE.07.22</p>	<p>All living organisms are composed of cells, from one cell to many cells and they exhibit cell growth and division.</p> <p>Specialized cells within multi-cellular organisms form different kinds of tissues and organs and organ systems that function together.</p> <p>Photosynthesis transforms light energy to chemical energy making possible the building key blocks of living organisms.</p> <p>All organisms have a life span and must reproduce in order</p>	<p><u>Vocabulary:</u></p> <p>cell</p> <p>cell division</p> <p>cell growth</p> <p>specialized cells</p> <p>tissue</p> <p>organs</p> <p>organ systems</p> <p>photosynthesis</p> <p>sexual reproduction</p> <p>asexual reproduction</p> <p>unicellular organism</p> <p>multicellular reproduction</p> <p>carbon dioxide</p> <p>water</p> <p>carbohydrate</p> <p>protein</p> <p>fat</p> <p>specialized tissue</p> <p>cell membrane</p>	<p>Cells project (Making models of animal or plant cells)</p> <p>Analysis Questions from cells kit</p> <p>End of Unit Test</p> <p>Quiz over parts of the cell</p> <p><b>Type 3 Writing: Analogy (relate cells to other things such as a factory, etc.) (Text types &amp; Purposes 2d) (See Collin's Writing Bank)</b></p>	<p>SEPUP: Differentiation of Cells Kit</p> <p>SEPUP: <i>MicroLife</i></p> <p>Bill Nye Video: <i>Cells</i></p> <p>United Streaming Videos</p> <p><i>Science Teacher's Activity-a-Day</i> book</p> <p>Prentice Hall: <i>Cells</i></p>

		<p>to continue the species.</p> <p>Reproduction may be asexual or sexual.</p>	<p>cell function  differentiation  diffusion  osmosis  active transport  chemical building blocks  fertilization  heart  muscle  nerve  systems: circulatory,  digestive, nervous,  skeletal, excretory,  muscular  genetic material  atoms  molecules</p> <p><u>Skills</u>  Preparing microscopic slides  Using a microscope  Building concepts – large to small &amp; vice versa  Categorizing  Explaining step-by-step processes</p>	<p>Misc. Type 1 &amp; 2 writings</p>	
Atmosphere	E.FE.M.1 E.FE.07.11 E.FE.07.12	<p>What types of gases are in Earth's atmosphere? What role do these gases play?</p> <p>Compare &amp; contrast Earth's atmosphere at different elevations</p>	<p><u>Vocabulary:</u>  atmosphere  air pressure  barometric pressure</p> <p><u>Skills:</u>  Reading charts &amp; graphs</p>	<p>Poster Project:  Atmosphere Layers &amp; Characteristics of Each Layer</p> <p>Content/ Vocabulary Quiz</p>	<p>SEPUP <i>Weather &amp; Climate</i></p> <p>Prentice Hall <i>Weather &amp; Climate</i></p> <p>www.NOAA.org</p>

			Drawing conclusions from scientific data		
Effect of Oceans on Weather & Climate	E.ES.07.71 E.ES.07.72 E.ES.07.73 E.ES.07.74	Compare and contrast the difference and relationship between weather and climate.  How does the constant motion of the oceans and atmosphere affect weather?  Explain how oceans transfer heat and affects climate around the world.	<u>Vocabulary:</u> atmosphere convection ocean currents wind weather climate air mass jet stream  <u>Skills:</u> Map Reading Observation vs. inference Making inferences based on data	Make a world map of ocean currents and climate zones  <b>Type 2 Writing:</b> <b>Explaining the World Map (See Collin's Writing Bank)</b>  Content/ Vocabulary Quiz	SEPUP <i>Weather &amp; Climate</i>  Prentice Hall <i>Weather &amp; Climate</i>  www.NOAA.org
Sun's Energy & the Water Cycle	E.ES.07.11 E.ES.07.12 E.ES.07.13 E.ES.M.8 E.ES.07.81 E.ES.07.82	What is the relationship between the warming by the sun of the Earth and the water cycle as it applies to the atmosphere?  How does the warming of Earth's atmosphere by the sun cause convection within the Earth's atmosphere and oceans, producing wind and ocean currents?	<u>Vocabulary:</u> water cycle evaporation water vapor condensation clouds transpiration cloud formation precipitation infiltration surface runoff radiation conduction	<b>Type 4 Writing:</b> <b>Traveling as a Drop of Water on the Water Cycle (See Collin's Writing Bank)</b>  Content/ Vocabulary Quiz	SEPUP <i>Weather &amp; Climate</i>  Prentice Hall <i>Weather &amp; Climate</i>  www.NOAA.org

		How is the flow of water connected between the components of a watershed, including surface and groundwater?	convection energy watershed groundwater  <u>Skills:</u> Step-by-step processes Cause and effect Modeling		
Weather Conditions & Weather Maps	E.ES.07.74	What kinds of weather conditions are associated with frontal boundaries?  How does the movement of major air masses and the jet stream affect North America's weather?  How can one predict the weather based on reading weather maps?	<u>Vocabulary:</u> frontal boundaries cold front warm front stationary front occluded front air mass jet stream barometric pressure dew point humidity  <u>Skills</u> Map Reading Making inferences Writing Hypotheses	<b>Type 2 Writing: Be a Meteorologist: Write a weather report based upon a regional weather map (See Collin's Writing Bank)</b>  Content/ Vocabulary Quiz	SEPUP <i>Weather &amp; Climate</i>  Prentice Hall <i>Weather &amp; Climate</i>  www.NOAA.org
Human Consequence	E.ES.M.4 E.ES.07.41 E.ES.07.42	How do human activities change the surface of the Earth and affect the survival of organisms?  Describe the origins of pollution and how pollution impacts habitats, climatic change, and threatens or	<u>Vocabulary:</u> surface mining deforestation overpopulation construction & urban development farming dams landfills	<b>Research &amp; presentation regarding a specific human activity</b> a. ramifications of the activity b. solutions/ preventions for further damage to our	SEPUP  Bill Nye Video: Pollution  <i>The Eleventh Hour</i> documentary with curriculum guide

		endangers species.	habitat destruction pollutant oxygen nitrogen trace gases endangered species extinct species potable non-potable  <u>Skills</u> Distinguish between valid & non-valid sources Cause & effect Drawing conclusions based on data	environment	
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