

St. Leo School 8<sup>th</sup> Grade Science Curriculum Map

Month	Content	Skills	Next Generation and KY and Louisville Standards
<b>August/ October</b>	<p>Forces &amp; Motion</p> <ul style="list-style-type: none"> <li>• Acceleration</li> <li>• Air resistance</li> <li>• Circular motion</li> <li>Conservation of momentum</li> <li>• Forces and net forces</li> <li>• Friction</li> <li>• Gravity</li> <li>• Inertia</li> <li>• Momentum</li> <li>• Newton's 1st law</li> <li>• Newton's 2nd law</li> <li>• Newton's 3rd law</li> <li>• Projectile motion</li> <li>• Speed</li> <li>• Velocity</li> <li>• Weight</li> </ul>	<ul style="list-style-type: none"> <li>• Measure and calculate speed of a moving object</li> <li>• Investigate effects of forces on the motion of objects.</li> <li>• Create distance vs. time and velocity vs. time graphs and interpret those types of graphs.</li> <li>• Investigate the importance of inertia using lab equipment.</li> <li>• Measure and calculate acceleration given a net force.</li> <li>• Predict and measure time required for an object to fall</li> <li>• Create, calculate, and construct two dimensional vectors.</li> <li>• Investigate circular motion with turntable.</li> <li>• Investigate action/reaction pairs (skateboard lab).</li> <li>• Predict behavior of objects after collisions (conservation of momentum).</li> <li>• Investigate the laws of physics most often employed in amusement park thrill rides.</li> <li>• Investigate forces and the effects of forces on the motion of objects</li> <li>• Investigate gravitational and electromagnetic forces</li> </ul>	<p>MS-PS2-1 MS-PS1-1 MS-PS1-2 MS-PS1-3 MS-PS1-4 MS-PS3-3 SC-6-MF-U-1 SC-6-MF-U-2 SC-6-MF-U-3 SC-6-MF-U-2 SC-7-ET-U-2 SC-7-STM-U-2 SC-7-STM-U-3 SC-8-MF-U-1 SC-8-MF-U-2 AE 2.1 – 2.6</p>
<b>November/ December</b>	<p>Matter &amp; Its Interactions</p> <ul style="list-style-type: none"> <li>• Alloys</li> <li>• Elements,</li> <li>• Compounds and mixtures.</li> <li>• Physical properties of</li> <li>• Mixtures</li> <li>• Suspensions, colloids</li> <li>• and solutions.</li> </ul>	<ul style="list-style-type: none"> <li>• Classify various store-bought substances as element, compound or mixture based on their ingredient labels.</li> <li>• Develop methods of separating various mixtures into their components based on their physical properties.</li> <li>• Analyze and model the physical characteristics of suspensions, colloids and solutions.</li> <li>• Categorize the different chemical and physical changes and properties.</li> <li>• Investigate properties of substances (e.g., color, texture, hardness etc.), analyze the properties of the</li> <li>• substances</li> </ul>	<p>MS-PS1-1 MS-PS1-2 MS-PS1-3 MS-PS1-4 MS-PS1-5 MS-PS1-6 SC-8-STM-U-1 SC-8-STM- AE 2.1 – 2.6U-6 AE 2.1 – 2.6</p>

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<b>January</b>	<ul style="list-style-type: none"> <li>• Atomic structure</li> <li>• Atomic mass and atomic number</li> <li>• Isotopes</li> <li>• Periodic Table</li> <li>• Metals, Nonmetals &amp; metalloids</li> </ul>	<ul style="list-style-type: none"> <li>• Build models of atoms and isotopes of various elements.</li> <li>• Classify elements based on their chemical reactivity and increasing atomic numbers.</li> <li>• Understand and re-create the Periodic Table using increasing atomic number and characteristics.</li> <li>• Use a conductivity meter to sample various items to check for electrical current.</li> </ul>	MS-PS1-5 SC-8-STM-U-3 SC-8-STM-U-4 AE 2.1 – 2.6
<b>February/ March</b>	<ul style="list-style-type: none"> <li>• Chemical formulas</li> <li>• Compounds</li> <li>• Covalent bonds</li> <li>• Dot diagrams</li> <li>• Ions and ionic bonds</li> <li>• Molecular mass</li> <li>• Naming of compounds</li> <li>• Polyatomic ions</li> </ul>	<ul style="list-style-type: none"> <li>• Analyze atomic structure and electric forces.</li> <li>• Investigate how the structure of matter (e.g., outer electrons, type of bond) relates to chemical properties of matter.</li> <li>• Investigate how the structure of matter (e.g., constituent atoms, distances and angles between atoms) relates to physical properties of matter.</li> </ul>	SC-8-STM-U-5 SC-8-STM-U-6 SC-7-STM-U-1 SC-7-STM-U-3 AE 2.1 – 2.6
<b>April/ May</b>	Meteorology	<ul style="list-style-type: none"> <li>• Names the various gases that comprise the atmosphere.</li> <li>• Describes the main characteristics of the various layers and temperature zones of the atmosphere.</li> <li>• Describes the Greenhouse Effect.</li> <li>• Describes the causes and effects of temperature inversions</li> <li>• Knows that land and water absorb and retain heat at different rates.</li> <li>• Understands humidity and the amount of moisture present in the air.</li> <li>• Describes the effect that temp. And pressure have on the amount of moisture in the atmosphere</li> <li>• Demonstrates how to measure relative humidity and the dew point</li> </ul>	MS-ESS2-4 MS-ESS2-5 SC-8-ET-U-3 AE 2.1 – 2.6

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	<p>Meteorology (continued)</p>	<ul style="list-style-type: none"> <li>• List the main characteristics of the major air masses (e.g., temp., humidity, etc.)</li> <li>• List the major causes of hurricanes, cyclones, tornadoes, and thunderstorms.</li> <li>• Describe safety precautions to take in various storm situations</li> <li>• Describes the causes of lightning and thunder</li>   <li>• Describes the differences between high and low-pressure areas.</li> <li>• Understands how low and high pressure affects weather.</li> <li>• Describes land and sea breezes</li> <li>• Understands how the rotations of the earth effects winds</li> <li>• Demonstrates how to record daily weather conditions</li> <li>• Demonstrates how to use a weather map</li> <li>• Describes the function and use of the major weather measurement instruments.</li> </ul>	<p>MS-ESS2-6 MS-ESS3-1 MS-ESS3-2 MS-ESS3-3 MS-ESS3-4 SC-6-1-U-2 AE 2.1 – 2.6</p>	
<p><b>September – December</b></p>	<p>Develops skills used in gathering, organizing, analyzing and applying information and or concepts</p>	<ul style="list-style-type: none"> <li>• Observes objects and phenomena</li> <li>• Identifies, describes and classifies the properties of objects and phenomena</li> <li>• Uses common materials appropriately for laboratory experiments or demonstrations</li> <li>• Knows the standard units of measurement in both the metric and English units</li> <li>• Measures the size, mass and volume of objects</li> <li>• Recognizes cause and effect relationships</li> <li>• Uses scientific method               <ul style="list-style-type: none"> <li>- Makes inferences</li> <li>- Forms hypotheses</li> <li>- Determines procedures</li> <li>- Follows procedures</li> <li>- Control Variables</li> <li>- Collects and records data</li> </ul> </li> </ul>	<p>Completes and Science Fair project following the scientific method.</p> <p>Completes various lab assignments.</p>	<p>MS-ETS1-1 MS-ETS1-2 MS-ETS1-3 MS-ETS1-4 AE 2.1 – 2.6</p>

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		<ul style="list-style-type: none"> <li>- Reports data graphically</li> <li>- Interprets data, graphs, tables etc.</li> <li>- Estimates results</li> <li>- Predicts outcomes</li> <li>- Draws conclusions</li> <li>- Makes deductions</li> <li>- Makes generalizations from obtained data</li> <li>- Organizes information in a written form</li> </ul>			