

# MCS Grade 8 Science Curriculum Map

	<b>September</b>	<b>October</b>	<b>November</b>	<b>December-January</b>
<b>Lab</b>	<ol style="list-style-type: none"> <li>1. Thermometers</li> <li>2. Freezing &amp; Boiling Points</li> <li>3. Heat Capacity</li> </ol>	<ol style="list-style-type: none"> <li>1. Acceleration</li> <li>2. Frictional Force</li> <li>3. Velocity</li> </ol>	<ol style="list-style-type: none"> <li>1. Current vs. Voltage</li> <li>2. Electrical Voltage</li> <li>3. Magnets</li> </ol>	<ol style="list-style-type: none"> <li>1. Sound Production</li> <li>2. Speed of Sound</li> <li>3. Sound &amp; Matter</li> </ol>
<b>Content</b>	<i>Heat &amp; Heat Transfer</i>	<i>Friction</i>	<i>Electricity &amp; Magnetism</i>	<i>Sound Waves &amp; Pressure</i>
<b>Skills &amp; Topics</b>	<ul style="list-style-type: none"> <li>distinguish the relationship between heat, kinetic energy and temperature</li> <li>explain how changes in thermal energy relate to freezing and boiling point of water</li> <li>explain how the addition of a solute changes the freezing and boiling point of water</li> <li>explain what changes in matter accompany changes in heat</li> <li>explain how the ability to absorb heat can be measured as a specific physical property of matter</li> </ul>	<ul style="list-style-type: none"> <li>distinguish the relationship between speed, velocity and acceleration</li> <li>explain how frictional force affect motion</li> <li>explain how velocity of an object affect the frictional force between it and the surface with which it comes in contact</li> <li>describe the relationship between weight and frictional force</li> <li>describe the relationship between the surface area of an object in contact with another surface and the frictional force between two surfaces</li> <li>explain how smoothness of two surfaces in contact affects the frictional force between the two surfaces</li> </ul>	<ul style="list-style-type: none"> <li>distinguish the relationship among voltage, current, and resistance</li> <li>explain how the dimensions of a resistor affect current</li> <li>explain the relationship between electricity and magnetism</li> <li>describe the factors affect the strength of an electromagnet</li> </ul>	<ul style="list-style-type: none"> <li>explain how sounds are produced</li> <li>describe how sound is transferred from one object or substance to another</li> <li>distinguish the relationship between the wavelength and frequency of a standing wave and the sound it produces</li> <li>determine the speed of sound in air</li> <li>explain how different types of matter affect the speed, the wavelength and the frequency of sound</li> </ul>
<b>Terms</b>	Kinetic energy; Temperature; Heat; Equilibrium; Law of Conservation of Energy; Heat transfer; Freezing point; Boiling point; Freezing point depression; Boiling point elevation; Rate; Specific Heat Capacity; Joules	Force; acceleration; velocity; applied force; frictional force; Coefficient of friction; Normal reaction force; $\Sigma F = ma$	Current; Electric potential; Multimeter; Ohm's Law; Potential difference; Resistance; resistor; Tesla (T)	Vibration; standing wave; node; antinode; pressure wave; frequency; wavelength; pitch; speed; Hertz
<b>Projects</b>		<b>Newton Scooters</b>		

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	<b>February</b>	<b>March</b>	<b>April</b>	<b>May-June</b>
<b>Lab</b>	<ol style="list-style-type: none"> <li>1. Transmission of Light</li> <li>2. Law of Reflection</li> <li>3. Absorbance Spectra</li> </ol>	<ol style="list-style-type: none"> <li>1. Chlorophyll and photosynthesis</li> <li>2. Carbon Dioxide &amp; Oxygen</li> <li>3. Cellular Respiration</li> <li>4. Sugar Production</li> </ol>	<ol style="list-style-type: none"> <li>1. Biomass</li> <li>2. Energy Transfer</li> <li>3. Levels in an Ecosystem</li> </ol>	<ol style="list-style-type: none"> <li>1. Physical &amp; Chemical Weathering</li> <li>2. Erosion</li> <li>3. Weathering &amp; Soil Formation</li> </ol>
<b>Content</b>	<i>Light</i>	<i>Photosynthesis</i>	<i>Ecosystems</i>	<i>Watershed</i>
<b>Skills &amp; Topics</b>	<ul style="list-style-type: none"> <li>• distinguish the relationship between the absorption and transmission of light through transparent substances</li> <li>• explain how light waves interact with objects that reflect light</li> <li>• explain how wavelengths affect the perception of light</li> <li>• describe how a change in mediums affect the wavelength of light</li> </ul>	<ul style="list-style-type: none"> <li>• explain which pigments or colors are present in spinach leaves</li> <li>• determine how light and photosynthesis affects carbon dioxide levels</li> <li>• explain how light and photosynthesis affect oxygen levels</li> <li>• explain the importance of light in photosynthesis</li> <li>• describe which parts of the plant that photosynthesis occurs</li> <li>• determine which pigment is required for photosynthesis</li> </ul>	<ul style="list-style-type: none"> <li>• explain how energy moves through an ecosystem</li> <li>• describe what affects the amount of energy in an ecosystem</li> <li>• describe what affects the efficiency of energy transfer within an ecosystem</li> <li>• determine the relationship between the energy and biomass of producers and the levels that an ecosystem can support</li> <li>• explain what affects the amount of energy in an ecosystem</li> </ul>	<ul style="list-style-type: none"> <li>• distinguish how physical and chemical weathering are different</li> <li>• explain how physical and chemical weathering combine to weather rocks</li> <li>• explain what occurs when erosion takes place</li> <li>• determine what factors increase or decrease erosion</li> <li>• describe the components of soil</li> <li>• determine how different components of soil differ from each other</li> </ul>
<b>Terms</b>	Light wave; wavelength; Nanometer; Absorbance; Transmittance; Reflection; Law of Reflection; Angle of incidence; Angle of reflection; Transparent; Opaque; Refraction; Index of refraction	Photosynthesis; Chloroplasts; Chlorophyll; Carbon dioxide; Oxygen; pH	Ecosystem; Producers; Consumers; Detritivore; Detritus; Trophic level; Biomass; Law of Conservation of Energy; Law of Conservation of Matter	Physical weathering; rocks; minerals; chemical weathering, erosion; soil
<b>Projects</b>			<i>Save the Bay (Field Trip?)</i>	