

MCS Grade 8 Science Curriculum Map

| | September | October | November | December-January |
|----------------------------|--|---|--|--|
| Lab | <ol style="list-style-type: none"> 1. Thermometers 2. Freezing & Boiling Points 3. Heat Capacity | <ol style="list-style-type: none"> 1. Acceleration 2. Frictional Force 3. Velocity | <ol style="list-style-type: none"> 1. Current vs. Voltage 2. Electrical Voltage 3. Magnets | <ol style="list-style-type: none"> 1. Sound Production 2. Speed of Sound 3. Sound & Matter |
| Content | <i>Heat & Heat Transfer</i> | <i>Friction</i> | <i>Electricity & Magnetism</i> | <i>Sound Waves & Pressure</i> |
| Skills & Topics | <ul style="list-style-type: none"> distinguish the relationship between heat, kinetic energy and temperature explain how changes in thermal energy relate to freezing and boiling point of water explain how the addition of a solute changes the freezing and boiling point of water explain what changes in matter accompany changes in heat explain how the ability to absorb heat can be measured as a specific physical property of matter | <ul style="list-style-type: none"> distinguish the relationship between speed, velocity and acceleration explain how frictional force affect motion explain how velocity of an object affect the frictional force between it and the surface with which it comes in contact describe the relationship between weight and frictional force describe the relationship between the surface area of an object in contact with another surface and the frictional force between two surfaces explain how smoothness of two surfaces in contact affects the frictional force between the two surfaces | <ul style="list-style-type: none"> distinguish the relationship among voltage, current, and resistance explain how the dimensions of a resistor affect current explain the relationship between electricity and magnetism describe the factors affect the strength of an electromagnet | <ul style="list-style-type: none"> explain how sounds are produced describe how sound is transferred from one object or substance to another distinguish the relationship between the wavelength and frequency of a standing wave and the sound it produces determine the speed of sound in air explain how different types of matter affect the speed, the wavelength and the frequency of sound |
| Terms | 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 |
| Projects | | Newton Scooters | | |

MCS Grade 8 Science Curriculum Map

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