



Content Area: Science
Grade Level: 8th Grade

Curriculum Map/Scope & Sequence (2021)

<u>Unit Name/Time Period</u>	<u>BIG Ideas/Skills</u>	<u>IL Priority Learning Standards</u>	<u>I CAN Statements</u>	<u>Assessments</u>
August September October Introduction to Physics Newton's Law of Motion Simple Machines	Simple Machines Newton's 3 Laws of Motion Mouse Trap Physics	MS-ETS1 Engineering Design MS-PS2 Motion and Stability: Forces and Interactions MS-PS3 Energy	<ul style="list-style-type: none">* I can explain how air resistance and gravity affect the acceleration of falling objects.* I can state and apply Newton's Laws of Motion to real life situations.* I can state and apply the Law of Conservation of Momentum.* I can describe the forces that affect the motion of matter.* I can compare balanced and unbalanced forces.* I can explain what causes friction and how it affects motion.* I can describe and give examples of the 4 types of friction.* I can identify the 2 factors that determine speed.* I can understand that motion is relative and based on a reference point.* I can explain how velocity and speed are different.* I can describe acceleration as a change in velocity.* I can calculate the average speed and acceleration.* I can recognize speed and acceleration on motion graphs.	Quizzes Project Presentations

<p>November December January</p>	<p>Chemistry</p>	<p>MS-PS1 Matter and Its Interactions MS-PS3 Energy</p>	<ul style="list-style-type: none"> * I can define physical science as the study of matter and energy. * I can describe the components of a good controlled experiment. * I can define terms associated with controlled experiments (independent variable, dependent variable, constants, and control). * I can read about a scientific experiment and determine the independent variable, dependent variable, constants, and control. * I can interpret data on a scientific graph and describe data trends using proper terms (e.g. linear, nonlinear, directly proportional, and inversely proportional). * I can use SI units to measure length, mass, and volume. * I can use a standard science reference sheet to find SI units and equations for calculating things such as volume or density. * I can convert between units in the metric system (e.g. cm à km) using the goal-post method. * I can describe the difference between physical and chemical properties. * I can describe the difference between physical and chemical changes. * I can interpret a data table of common physical properties (e.g. density, melting / boiling point, malleability) and chemical properties (reactivity, flammability, corrosivity). * I can differentiate between elements, compounds and mixtures based on their composition and understanding how they can or cannot be separated. * I can describe different methods for separating mixtures including filtering, centrifuge, and distillation.. * I can describe the 6 changes of state (melting, sublimation, vaporization, condensation, deposition, and freezing) in terms of what happens to the energy and spacing of the particles. * I can describe the differences between endothermic and exothermic changes of state. 	<p>Quizzes Project Presentations</p>
<p>February</p>	<p>Bonding- Ionic, Covalent and Metallic Balancing Equations</p>	<p>MS-PS1 Matter and Its Interactions MS-PS3 Energy</p>	<ul style="list-style-type: none"> I can describe chemical bonding. * I can identify the number of valence electrons in an atom. * I can describe the properties associated with ionic, covalent, and metallic bonds. * I can diagram how ionic and covalent bonds form. 	<p>Quizzes Project Presentations Unit Test</p>

March	Biology	MS-LS2 Ecosystems: Interactions, Energy, and Dynamics MS-LS3 Heredity: Inheritance and Variation of Traits MS-LS4 Biological Evolution: Unity and Diversity	Design and solution to a problem involving a collision of two objects. <ul style="list-style-type: none"> • Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object • Use evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects. • Graph data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object. • Use evidence to support the claim that when kinetic energy of an object changes, energy is transferred to or from the object. • Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer. 	Quizzes Presentations Unit Test
April May	Water Rockets Physics Speed Acceleration Payload Force	MS-ETS1 Engineering Design MS-PS2 Motion and Stability: Forces and Interactions MS-PS3 Energy	<ul style="list-style-type: none"> * I can explain how air resistance and gravity affect the acceleration of falling objects. * I can state and apply Newton's Laws of Motion to real life situations. * I can state and apply the Law of Conservation of Momentum. * I can describe the forces that affect the motion of matter. * I can compare balanced and unbalanced forces. * I can explain what causes friction and how it affects motion. * I can describe and give examples of the 4 types of friction. * I can identify the 2 factors that determine speed. * I can understand that motion is relative and based on a reference point. * I can explain how velocity and speed are different. * I can describe acceleration as a change in velocity. * I can calculate the average speed and acceleration. * I can recognize speed and acceleration on motion graphs. 	Quizzes Project Presentations Unit Test