Unit 0			
Experimental Design			
Duration		**3 weeks(August/September)**	**Assessed**
Priority Standard(s)		Design, conduct, communicate, and defend a valid experiment.	
		Have to teach until EOC for Biology changes to meet the Missouri Science Standards	
Supporting Standard(s)	9-12.PS1.A.3	Plan and conduct an investigation to gather evidence to compare physical and chemical properties of substances.	
	9-12.PS2.A.1	Analyze data to support and verify the concepts expressed by Newton's second law of motion.	
	9-12.ESS2.C.1	Plan and conduct an investigation of the properties of water and its effects on earth materials and surface processes.	

Unit 1			
Classification of Matter			
Duration		**2.5 weeks (September)**	**Assessed**
Priority Standard(s)	9-12.PS1.A.3	Plan and conduct an investigation to gather evidence to compare physical and chemical properties of substances, such as melting point, boiling point, vapor pressure, surface tension, and chemical reactivity, to infer the relative strength of attractive forces between particles.	
Supporting Standard(s)	9-12.PS1.A.2	Construct and revise an explanation for the products of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.	

Unit 2			
Properties of Atoms and the Periodic Table			
Duration		**2.5 weeks (September/October)**	**Assessed**
Priority Standard(s)	9-12.PS1.A.1	Use the organization of the periodic table to predict the relative properties of elements based on the patterns of electrons in the outer most energy level of atoms.	
Supporting Standard(s)	9-12.PS1.A.2	Construct and revise an explanation for the products of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.	

Unit 3			
Elements and Their Properties			
Duration		**2.5 weeks (October)**	**Assessed**
Priority Standard(s)	9-12. PS1.A.2	Construct and revise an explanation for the products of a simple chemical reaction based on the outer-most electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.	
Supporting Standard(s)	9-12.PS1.A.1	Use the organization of the periodic table to predict the relative properties of elements based on the patterns of electrons in the outer most energy level of atoms.	

Unit 4			
Chemical Bonds			
Duration		**3.5 weeks (November)**	**Assessed**
Priority Standard(s)	9-12.PS1.A.5	Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.	
Supporting Standard(s)	9-12.PS1.A.2	Construct and revise an explanation for the products of a simple chemical reaction based on the outer-most electron states of atoms, trends in the periodic table, and knowledge of chemical properties.	

Unit 5			
Chemical Reactions			
Duration		**2.5 week (December)**	**Assessed**
Priority Standard(s)	9-12.PS1.B.3	Use symbolic representations and mathematical calculations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.	
Supporting Standard(s)	9-12.PS1.B.1	Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.	

Unit 6			
Engineering Design			
Duration		**4 weeks (January/February)**	**Assessed**
Priority Standard(s)	9- 12.ETS1.A.1	Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.	
Supporting Standard(s)	9- 12.ETS1.B.1	Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts.	
	9- 12.ETS1.A.2	Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.	
	9- 12.ETS1.B.2	Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem.	

Unit 7			
Motion			
Duration		**4 weeks (February/March)**	**Assessed**
Priority Standard(s)	9-12.PS2.A.1	Analyze data to support and verify the concepts expressed by Newton's 2nd law of motion, as it describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.	
Supporting Standard(s)	9-12.PS2.A.2	Use mathematical representations to support and verify the concepts that the total momentum of a system of objects is conserved when there is no net force on the system.	
	9-12.PS2.A.3	Apply scientific principles of motion and momentum to design, evaluate, and refine a device that minimizes the force on a macroscopic object during collision.	

Unit 8			
Forces and Newton's Laws			
Duration		**4.5 weeks (March/April)**	**Assessed**
Priority Standard(s)	9-12.PS2.A.3	Apply scientific principles of motion and momentum to design, evaluate, and refine a device that minimizes the force on a macroscopic object during collision.	
Supporting Standard(s)	9-12.PS2.A.1	Analyze data to support and verify concepts expressed by Newton's laws of motion.	
	9-12.PS2.B.1	Use mathematical representations of Newton's law of gravitation to describe and predict the gravitational forces between objects.	

Unit 9			
Energy			
Duration		**4 weeks (April/May)**	**Assessed**
Priority Standard(s)	9-12.PS3.A.2	Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associate with the motions of particles (objects) and energy associated with the relative position of particles (objects).	
Supporting Standard(s)	9-12.PS3.A.1	Create computational model to calculate the change in the energy of one component in a system when the changes in energy are known.	
	9-12.PS3.B.1	Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in more uniform energy distribution among the components in the system.	