Unit 1			
Safety			
Duration	2 weeks (Aug)		**Assessed**
Priority Standard(s)		No relevant Missouri state standards	
Supporting Standard(s)			

Unit 2			
Science Processing and Measurement			
Duration	2 weeks (Aug/Sept)		**Assessed**
Priority Standard(s)		No relevant Missouri learning standards	
Supporting Standard(s)			

Unit 3			
Mole Concept			
Duration	3 weeks (Sept)		**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. [Clarification Statement: Emphasis is on conservation of matter and mass through balanced chemical equations, use of the mole concept and proportional relationships.]	
Supporting Standard(s)			

Unit 4			
Atomic Structure/Nuclear			
Duration	3 weeks (Oct)		**Assessed**
Priority Standard(s)	9-12.PS1.C.1	Use symbolic representations to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay. [Clarification Statement: Emphasis is on simple qualitative models, such as pictures or diagrams, and on the scale of energy released in nuclear processes relative to other kinds of transformations.]	
	9-12.PS4.B.2	Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter. [Clarification Statement: Emphasis is on the idea that photons associated with different frequencies of light have different energies, and the damage to living tissue from electromagnetic radiation depends on the energy of the radiation. Examples of published materials could include trade books, magazines, web resources, videos, and other passages that may reflect bias.]	
Supporting Standard(s)	9-12.ESS1.A.3	Communicate scientific ideas about the way stars, over their life cycle, produce elements. [Clarification Statement: Emphasis is on the way nucleosynthesis, and therefore the different elements created, varies as a function of the mass of a star and the stage of its lifetime.]	
	9-12.PS2.B.2	Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current.	
	9-12.PS4.B.1	Communicate technical information about how electromagnetic radiation interacts with matter. [Clarification Statement: Examples could include solar cells capturing light and converting it to electricity; medical imaging; and communications technology.]	

Unit 5			
Electrons and Energy			
Duration	5 weeks (Oct/Nov)		**Assessed**
Priority Standard(s)	9-12.PS4.A.1	Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media. [Clarification Statement: Examples of data could include electromagnetic radiation traveling in a vacuum and glass, sound waves traveling through air and water, and seismic waves traveling through the Earth.]	
	9-12.PS4.A.2	Evaluate the claims, evidence, and reasoning behind the idea that electromagnetic radiation can be described either by a wave model or a particle model, and that for some situations one model is more useful than the other. [Clarification Statement: Emphasis is on how the experimental evidence supports the claim and how a theory is generally modified in light of new evidence. Examples of a phenomenon could include resonance, interference, diffraction, and photoelectric effect.]	
Supporting Standard(s)			

Unit 6			
Periodicity			
Duration	3 weeks (Dec)		**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 outermost energy level of atoms. [Clarification Statement: Examples of properties that could be predicted from patterns could include reactivity of metals, types of bonds formed, numbers of bonds formed, and reactions with oxygen.]	
Supporting Standard(s)			

Unit 7			
Molecular Compounds			
Duration	4 weeks (Jan)		**Assessed**
Priority Standard(s)	9-12.PS1.A.4	Apply the concepts of bonding and crystalline/molecular structure to explain the macroscopic properties of various categories of structural materials, i.e. metals, ionic (ceramics), and polymers. [Clarification Statement: Emphasis is on the attractive and repulsive forces that determine the functioning of the material. Examples could include why electrically conductive materials are often made of metal, flexible but durable materials are made up of long chained molecules, and pharmaceuticals are designed to interact with specific receptors.]	
Supporting Standard(s)			

Unit 8			
Ionic Compounds			
Duration	3 weeks (Feb)		**Assessed**
Priority Standard(s)	9-12.PS1.A.4	Apply the concepts of bonding and crystalline/molecular structure to explain the macroscopic properties of various categories of structural materials, i.e. metals, ionic (ceramics), and polymers. [Clarification Statement: Emphasis is on the attractive and repulsive forces that determine the functioning of the material. Examples could include why electrically conductive materials are often made of metal, flexible but durable materials are made up of long chained molecules, and pharmaceuticals are designed to interact with specific receptors.]	
Supporting Standard(s)			

Unit 9			
Chemical Reactions			
Duration	4 weeks (March/April)		**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 outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties. [Clarification Statement: Examples of chemical reactions could include the reaction of sodium and chlorine, or of oxygen and hydrogen.]	
Supporting Standard(s)			

Unit 10			
Stoichiometry			
Duration	7 weeks (April/May)		**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. [Clarification Statement: Emphasis is on conservation of matter and mass through balanced chemical equations, use of the mole concept and proportional relationships.]	
	9-12.PS1.B.2	Refine the design of a chemical system by specifying a change in conditions that would alter the amount of products at equilibrium. [Clarification Statement: Emphasis is on the application of Le Chatelier's Principle and on refining designs of chemical reaction System, including descriptions of the connection between changes made at the macroscopic level and what happens at the molecular level. Examples of designs could include different ways to increase product formation including adding reactants or removing products.]	
Supporting Standard(s)			