Physical Science Essentials I	Scope and Sequence
Unit Lesson	**Objectives**
Energy and Motion	
Speed and Velocity	
	Differentiate between speed and velocity.
	Solve problems involving distance, time, speed, and/or velocity.
	Interpret graphs of distance versus time.
Acceleration	
	Describe the concept of acceleration.
	Solve problems involving velocity, time, and acceleration.
	Interpret graphs of velocity versus time.
Lab: Motion	
	Measure distance and time to determine speed.
	Graph changes in motion.
	Interpret data to determine acceleration.
Potential and Kinetic Energy	
	Distinguish between potential and kinetic energy.
	Calculate the potential energy in a system.
	Calculate the kinetic energy in a system.
	Explain how energy is transferred in a moving system.
Lab: Kinetic Energy	

Physical Science Essentials I	Scope and Sequence
Unit **Lesson**	**Objectives**
	Calculate the kinetic energy of objects of different mass.
	Determine the kinetic energy of objects at different speeds.
	Graph data to illustrate changes in kinetic energy.
Unit Test	
Waves	
Sound Waves	
	Describe how sound waves are produced and how they travel.
	Identify the features of a sound wave.
	Explain how different materials and different temperatures affect the speed of sound waves.
Hearing and the Ear	
	Identify the parts of the ear.
	Describe the function of each section of the ear.
	Examine the causes of hearing loss.
Using Sound	
	Explain how and why animals use echolocation.
	Describe the uses of ultrasound technology.
	Summarize the ways in which sound waves are used for communication.
The Electromagnetic Spectrum	
	Describe the different parts of the electromagnetic spectrum.
	Distinguish how electromagnetic waves differ from one another.

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Unit	**Lesson**	**Objectives**
		Identify how different types of electromagnetic waves are used.
	Reflection and Mirrors	
		Explain how light is reflected from a surface.
		Describe the law of reflection.
		Describe how a mirror forms an image.
		Identify the types of images formed by different kinds of mirrors.
	Unit Test	
Elements and the Periodic Table		
	Metals	
		Describe the characteristic properties of metals.
		Identify the location of metals in the periodic table.
		Explain how and why the reactivity of metals changes in the periodic table.
	Nonmetals	
		Describe the characteristic properties of nonmetals.
		Identify the location of nonmetals in the periodic table.
		Explain how and why the reactivity of nonmetals changes in the periodic table.
	Metalloids	
		Describe the characteristic properties of metalloids.
		Identify the location of metalloids in the periodic table.
		Explain why most metalloids are used as semiconductors.
	Radioactivity	
		Summarize the discovery of radioactivity.

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		Explain radioactive decay.
		Perform calculations involving the half-life of a radioactive isotope.
		Describe applications of radioactive isotopes.
	Chemical Bonding	
		Explain why atoms bond.
		Identify the three types of bonds.
		Complete electron dot diagrams.
	Unit Test	
Physical and Chemical Reactions		
	Balancing Chemical Equations	
		Explain what it means for a chemical equation to be balanced.
		Demonstrate how to balance a chemical equation.
		Relate balanced chemical equations to the law of conservation of mass.
	Rate of Chemical Reactions	
		Explain activation energy and its importance to chemical reactions.
		Describe the factors that affect the rate of a chemical reaction.
		Recognize how a catalyst and an inhibitor affect a chemical reaction.
	Lab: Rate of Chemical	

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Unit	**Lesson**	**Objectives**
	Reactions	
		Describe the signs of a chemical reaction.
		Identify how temperature and surface area affect the rate of a chemical reaction.
		Science Practice: Conduct several controlled tests of multiple variables using repeated trials during an investigation about chemical reaction rate.
	Separation of Mixtures	
		Explain why mixtures are able to be separated.
		Describe methods for separating mixtures.
	Properties of Acids and Bases	
		Compare the properties of acids and bases.
		Describe common uses for acids and bases.
	Unit Test	
Properties of Matter		
	The Four States of Matter	
		Describe the arrangement and motion of atoms in the different states of matter.
		Discriminate the characteristics of solids, liquids, gases, and plasma.
	Chemical Changes	
		Describe and give examples of chemical properties of matter.
		Explain what happens during a chemical change.
		Describe the evidence that shows a chemical change has occurred.
		Compare and contrast the properties of a new substance with the original substance after a chemical change.
	Density	

Physical Science Essentials I		Scope and Sequence
Unit	**Lesson**	**Objectives**
		Explain density and state the SI units used to measure it.
		Calculate the mass, volume, or density of an object given the other two measurements.
		Determine whether an object will sink or float relative to the density of the surrounding liquid.
	Lab: Density of Solids	
		Measure the mass and volume of various solid objects.
		Calculate the density of several solid objects.
		Use density to identify an unknown substance.
	Behavior of Gases	
		Distinguish between Boyle's law, Charles's law, and Gay-Lussac's law.
		Use the combined gas law to determine pressure, temperature, and volume of a gas.
	Unit Test	
Cumulative Exam		
	Cumulative Exam Review	
	Cumulative Exam	