

Physical Science Essentials II		Scope and Sequence
Unit	Lesson	Objectives
Matter	Introduction to Matter	
		Explain what makes up matter.
		Describe how to measure mass and volume.
		Differentiate between mass and weight.
Physical Properties		
		Describe and give examples of physical properties of matter.
		Explain what happens during a physical change.
		Identify examples of physical changes.
States of Matter		Explain how and why matter is conserved during a physical change.
		Describe the arrangement and motion of atoms in the different states of matter.
		Discriminate the characteristics of solids, liquids, and gases.
Changes of State		
		Describe what happens during the different changes of state.
Chemical Properties		Explain how energy is related to changes of state.
		Describe and give examples of chemical properties of matter.
		Explain what happens during a chemical change.
		Identify examples of chemical changes.
		Differentiate between physical and chemical changes
Unit Test		

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Atoms, Elements, and Compounds		
Atomic Theory		
		Describe the development of the modern model of the atom.
		Compare the models of the atom put forth by Dalton, Thomson, Rutherford, and Bohr.
Atoms		
		Describe the parts of an atom.
		Identify the masses, locations, and charges of protons, neutrons, and electrons.
Elements		
		Examine the properties of an element.
		Describe what an isotope is and explain how isotopes of the same element are different.
		Explain how ions form.
Periodic Table		
		Examine the history of the periodic table.
		Describe the organization of the periodic table.
		Determine an element's symbol, atomic number, and mass number from the periodic table.
Compounds		
		Describe the defining characteristics of a compound.
		Explain how chemical formulas represent compounds.
		Determine the number of atoms of each element in a chemical formula.
		Use models to visualize the chemical structure of a compound.
Unit Test		

Physical Science Essentials II		Scope and Sequence
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Forces and Newton's Laws		
	Introduction to Forces	Describe the concept of force.
		Explain how to determine the net force on an object.
		Distinguish between balanced and unbalanced forces and their effect on motion.
	Friction	Describe friction and explain what causes it to occur.
		Identify and describe the different types of friction.
		Explain how friction can be reduced or increased depending on the application.
	Gravity	Describe Newton's law of universal gravitation.
		Identify and describe the factors that affect the gravitational force between two objects.
		Explain the concept of free fall.
		Describe how gravity affects projectile motion.
	Newton's Laws of Motion	Describe Newton's first law of motion and how it relates to inertia.
		Use Newton's second law of motion to calculate force, mass, and acceleration.
		Explain Newton's third law of motion and how it relates to action and reaction forces.
		Identify applications of Newton's three laws of motion.
	Lab: Newton's Laws of Motion	Demonstrate Newton's first law.
		Verify Newton's second law by changing the variables F, m, or a.

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	Unit Test	
	Conservation of Energy	
	Work and Power	
		Identify when work is done.
		Calculate the work done on an object.
		Explain how force, work, and power are related.
		Calculate power.
	Introduction to Machines	
		Define a machine and explain its purpose.
		Calculate the mechanical advantage of a machine.
		Calculate the efficiency of a machine.
	Simple Machines	
		Describe the six different types of simple machines.
		Calculate the mechanical advantage of each type of simple machine.
		Identify simple machines found in the human body.
		Distinguish compound machines from simple machines.
	Introduction to Energy	
		Define energy.
		Explain how energy and work are related.
		Identify and describe the different forms of energy.
	Energy Transformations	
		Explain how energy changes form.

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		Identify examples of energy transformations.
		Summarize the law of conservation of energy.
	Unit Test	
Visible Light		
	Introduction to Waves	
		Define waves and explain how they carry energy.
		Distinguish between mechanical waves and electromagnetic waves.
		Compare and contrast transverse waves and longitudinal waves.
	Properties of Light	
		Describe the wave and particle models of light.
		Explain what happens when light interacts with objects.
		Recognize what determines the color of an object.
	Refraction and Lenses	
		Explain how light is refracted when it passes from one medium to another.
		Describe how a lens forms an image.
		Analyze ray diagrams for a lens.
		Identify the types of images formed by different kinds of lenses.
	Seeing and the Eye	
		Identify the parts of the eye.
		Describe the role of each part of the eye in seeing an object.
		Explain how vision problems are corrected using lenses.
	Using Light	

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		Describe how magnifying glasses, microscopes, telescopes, and cameras work.
		Differentiate laser light from regular light and identify uses of lasers.
		Identify uses of fiber optics.
	Unit Test	
Cumulative Exam		
	Cumulative Exam Review	
	Cumulative Exam	