

Physical Science

State Standard Number	State Standard Area/Description	Unit Name	Course Topic Description
PS.1	Recognize periodic trends of elements, including the number of valence electrons, atomic size, and reactivity.		
	Categorizing elements as metals, nonmetals, metalloids, and noble gases	Atomic Structure Chemical Bond	The Periodic Table Metallic Bonding
	Differentiating between families and periods		
	Using atomic number and mass number to identify isotopes	Atomic Structure	Protons, Neutrons, and Electrons
PS.2	Identify solutions in terms of components, solubility, concentration, and conductivity.		
	Comparing saturated, unsaturated, and supersaturated solutions		
	Comparing characteristics of electrolytes and nonelectrolytes	Chemical Reactions	Acid/Base Reactions
	Describing factors that affect solubility and rate of solution, including nature of solute and solvent, temperature, agitation, surface area, and pressure on gases		
PS.3	Contrast the formation of ionic and covalent bonds based on the transfer or sharing of valence electrons.		
	Demonstrating the formation of positive and negative monatomic ions by using electron dot diagrams		
PS.4	Use nomenclature and chemical formulas to write balanced chemical equations.		
	Explaining the law of conservation of matter		
	Identifying chemical reactions as composition, decomposition, single replacement, or double replacement	Chemical Reactions	Chemical Reactions Chemical Reactions and Energy
	Defining the role of electrons in chemical reactions	Atomic Structure	Protons, Neutrons, and Electrons
PS.5	Describe physical and chemical changes in terms of endothermic and exothermic processes.	Matter	Changes in Matter
		Chemical Reactions	Endothermic and exothermic reactions
PS.6	Identify characteristics of gravitational, electromagnetic, and nuclear forces.	Simple Machines	Overcoming gravity and friction
PS.7	Relate velocity, acceleration, and kinetic energy to mass, distance, force, and time.		
	Interpreting graphical representations of velocity versus time and distance versus time		
	Solving problems for velocity, acceleration, force, work, and power	Forces Energy and Motion	Newton's Second Law of Motion Acceleration

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	Describing action and reaction forces, inertia, acceleration, momentum, and friction in terms of Newton's three laws of motion	Energy and Motion	Sir Isaac and Seat Belts Acceleration Newton's First Law of Motion
		Forces	Newton's Third Law Newton's Second Law of Motion
		Simple Machines	Overcoming gravity and friction
		Forces	Newton's Third Law
		Simple Machines	Using machines
PS.8	Relate the law of conservation of energy to transformations of potential energy, kinetic energy, and thermal energy.		
	Identifying the relationship between thermal energy and the temperature of a sample of matter	Energy	Conservation of Energy
	Describing the flow of thermal energy between two samples of matter	Energy	Conservation of Energy
	Explaining how thermal energy is transferred by radiation, conduction, and convection	Electricity and Magnetism	Conductors and insulators
		Atomic Structure	Radiation
Relating simple formulas to the calculation of potential energy, kinetic energy, and work	Energy	Potential energy	
PS.9	Compare methods of energy transfer by mechanical and electromagnetic waves.		
	Distinguishing between transverse and longitudinal mechanical waves	Waves	Waves
	Relating physical properties of sound and light to wave characteristics	Waves	Waves
		Waves	Electromagnetic Radiation
PS.10	Explain the relationship between electricity and magnetism.		
	Differentiating between induction and conduction		
	Identifying mechanical, magnetic, and chemical methods used to create an electrical charge	Electricity and Magnetism	Magnetism
	Describing electrical circuits in terms of Ohm's law	Electricity and Magnetism	Electrical Current
Ohm's law			
PS.11	Describe the nuclear composition of unstable isotopes and the resulting changes to their nuclear composition.		
	Identifying types of nuclear emissions, including alpha	Atomic Structure	Radiation



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	particles, beta particles, and gamma radiation		
	Differentiating between fission and fusion	Atomic Structure	Nuclear Process
	Identifying uses and possible negative side effects of nuclear technology		
PS.12	Identify metric units for mass, distance, time, temperature, velocity, acceleration, density, force, energy, and power.	Matter	System Units
			Length