


Component Idea	Scope	Performance Expectation (PE)	Disciplinary Core Idea (DCI)	Science and Engineering Practice(s) (SEP)	Crosscutting Concepts (CCC)
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 PS1: Matter and Its Interactions					
Structure and Properties of Matter	Atomic Structure and Bonding	HS-PS1-1	PS1.A	Developing and Using Models	Patterns
	Periodic Table and Trends	HS-PS1-1 HS-PS1-2	PS1.A	Developing and Using Models Constructing Explanations and Designing Solutions	Patterns
	Intermolecular Forces	HS-PS1-3	PS1.A	Planning and Carrying Out Investigations	Patterns
	Modeling Conservation of Energy	HS-PS1-4	PS1.A	Developing and Using Models	Energy and Matter
Nuclear Processes	Fission, Fusion and Radioactive Decay	HS-PS1-8	PS1.C	Developing and Using Models	Energy and Matter
Chemical Reactions	Reaction Rates	HS-PS1-4 HS-PS1-5	PS1.B	Developing and Using Models Constructing Explanations and Designing Solutions	Energy and Matters Patterns
	Chemical Equilibrium	HS-PS1-6	PS1.B	Constructing Explanations and Designing Solutions	Stability and Change
	Conservation of Matter	HS-PS1-2 HS-PS1-7	PS1.B	Constructing Explanations and Designing Solutions Using Mathematics and Computational Thinking	Patterns Energy and Matter

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PS2: Motion and Stability: Forces and Interactions

Forces and Motion	Newton's Second Law of Motion	HS-PS2-1	PS2.A	Analyzing and Interpreting Data	Cause and Effect
	Momentum	HS-PS2-2	PS2.A	Using Mathematics and Computational Thinking	Systems and System Models
	Conservation of Momentum	HS-PS2-2 HS-PS2-3	PS2.A	Using Mathematics and Computational Thinking	Patterns
Types of Interactions	Gravitational and Electrostatic Forces	HS-PS2-4	PS2.B	Using Mathematics and Computational Thinking	Patterns
	Electric Currents and Magnetic Fields	HS-PS2-4 HS-PS2-5	PS2.B	Using Mathematics and Computational Thinking Planning and Carrying Out Investigations	Patterns Cause and Effect
	Influence of Molecular Structure	HS-PS2-6	PS2.B	Obtaining, Evaluating, and Communicating Information	Structure and Function



PS3: Energy

Definitions of Energy	Macro-and Microscopic Views of Energy	HS-PS3-2 HS-PS3-3	PS3.A PS3.A	Developing and Using Models Constructing Explanations and Designing Solutions	Energy and Matter
	Defining Energy	HS-ETS1-3 HS-ETS1-2 HS-PS3-2 HS-PS3-1	PS3.A	Developing and Using Models Using Mathematics and Computational Thinking	Energy and Matter Systems and System Models
Conservation of Energy and Energy Transfer	Conservation of Energy	HS-PS3-1	PS3.B	Using Mathematics and Computational Thinking	Systems and System Models
	Energy Transfer in Thermal Processes	HS-PS3-4 HS-PS3-1	PS3.B	Planning and Carrying Out Investigations Using Mathematics and Computational Thinking	Systems and System Models
Relationship Between Energy and Forces	Electromagnetic Interactions	HS-PS3-5	PS3.C	Developing and Using Models	Cause and Effect

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Energy in Chemical Processes	Energy Applications	HS-PS3-3 HS-PS3-4	PS3.D	Constructing Explanations and Designing Solutions	Energy and Matter
 PS4: Waves and Their Applications in Technologies for Information Transfer					
Wave Properties	Properties of Waves	HS-PS4-1	PS4.A	Asking Questions and Defining Problems Obtaining, Evaluating, and Communicating Information	Cause and Effect
	Digital Transmission and Storage	HS-PS4-2 HS-PS4-5	PS4.A	Evaluate questions that challenge the premise(s) of an argument Communicate technical information or ideas	Stability and Change Cause and Effect
	Electromagnetic Waves	HS-PS4-3	PS4.A	Engaging in Argument from Evidence	Systems and System Models
Electromagnetic Radiation	Wave Model vs. Particle Model	HS-PS4-3	PS4.B	Engaging in Argument from Evidence	Systems and System Models
	Wave Interactions in Matter	HS-PS4-4	PS4.B	Obtaining, Evaluating, and Communicating Information	Cause and Effect
Information Technologies and Instrumentation	Wave Interactions and Technology	HS-PS4-5	PS4.C PS4.B	Obtaining, Evaluating, and Communicating Information	Cause and Effect