



Alignment Document
State of Hawaii and Aventa Learning Chemistry

Chemistry
2005-2007 Benchmark Blueprint

Strand	Standard	Topic	Benchmark	Unit Name	Course Topic Description
The Scientific Process	PS.1 Discover, invent, and investigate using the skills necessary to engage in the scientific process	Scientific Inquiry	PS.1.1 Describe how a testable hypothesis may need to be revised to guide a scientific investigation	The Scientific Method	The Scientific Method
			PS.1.2 Design and safely implement an experiment, including the appropriate use of tools and techniques to organize, analyze, and validate data	Labs	Labs Throughout Course
			PS.1.3 Defend and support conclusions, explanations, and arguments based on logic, scientific knowledge, and evidence from data	Labs	Labs Throughout Course
			PS.1.4 Determine the connection(s) among hypotheses, scientific evidence, and conclusions	Labs	Labs Throughout Course
			PS.1.5 Communicate the components of a scientific investigation, using appropriate techniques	Labs	Lab Reports Throughout Course
			PS.1.6 Engage in and explain the importance of peer review in science		

			<p>PS.1.7 Revise, as needed, conclusions and explanations based on new evidence</p> <p>PS.1.8 Describe the importance of ethics and integrity in scientific investigation</p> <p>PS.1.9 Explain how scientific explanations must meet a set of established criteria to be considered valid</p>	The Scientific Method	The Scientific Method
The Scientific Process	PS.2 Understand that science, technology, and society are interrelated	Science, Technology, and Society	<p>PS.2.1 Explain how scientific advancements and emerging technologies have influenced society</p> <p>PS.2.2 Compare the risks and benefits of potential solutions to technological issues</p>	Nuclear Chemistry Nuclear Chemistry	Fission and Fusion Fission and Fusion
Life and Environmental Sciences	PS.3 Understand the unity, diversity, and interrelationships of organisms, including their relationship to cycles of matter and energy in the environment		No benchmark for Physical Science		
Life and Environmental Sciences	PS.4 Understand the structures and functions of living organisms and how organisms can be compared scientifically		No benchmark for Physical Science		
Life and Environmental Sciences	PS.5 Understand genetics and biological evolution and their impact on the unity and diversity of organisms		No benchmark for Physical Science		

Physical, Earth, and Space Sciences	<p>PS.6 Understand the nature of matter and energy, forms of energy (including waves) and energy transformations, and their significance in understanding the structure of the universe</p>	Energy and its Transformation	<p>PS.6.1 Describe endothermic and exothermic chemical reactions</p> <p>PS.6.2 Explain how the law of conservation of energy is applied to various systems</p> <p>PS.6.3 Describe different examples of the concept of entropy</p> <p>PS.6.4 Explain that changes in thermal energy can lead to a phase change of matter</p> <p>PS.6.5 Compare transverse and longitudinal waves and their properties</p> <p>PS.6.6 Explain and provide examples of electromagnetic radiation and sound using a wave model</p> <p>PS.6.7 Explain how elements are arranged in the periodic table and describe trends among elemental properties</p> <p>PS.6.8 Describe interactions among molecules</p>	<p>Thermodynamics</p> <p>Thermodynamics</p> <p>Thermodynamics</p> <p>Thermodynamics</p> <p>Thermodynamics</p> <p>Thermodynamics</p> <p>Solids, Liquids, and Gases</p> <p>Atoms/Period Table</p> <p>Atoms/Period Table</p> <p>Ionic Compounds</p> <p>Ionic Compounds</p>	<p>Introduction</p> <p>Thermodynamics</p> <p>Thermodynamics</p> <p>Conservation of Energy</p> <p>Conservation of Energy-Calorimetry</p> <p>Conservation of Energy-Calorimetry</p> <p>Change of State</p> <p>Group Names</p> <p>Trends in The Periodic Table</p> <p>Ionic and Covalent Compounds</p> <p>Ionic and Covalent Compounds</p>
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Physical, Earth, and Space Sciences	PS.7 Understand the relationship between force, mass, and motion of objects; and know the major natural forces: gravitational, electric, and magnetic	Forces and Motion	<p>PS.7.1 Apply the laws of motion to determine the effects of forces on the linear motion of objects</p> <p>PS.7.2 Use vectors to explain force and motion</p> <p>PS.7.3 Explain the relationship among the gravitational force, the mass of the objects, and the distance between objects</p> <p>PS.7.4 Explain the magnetic and electric forces in the universe</p>		
Physical, Earth, and Space Sciences	PS.8 Understand the Earth and its processes, the solar system, and the universe and its contents		No benchmark for Physical Science		