



Alignment Document
State of Hawaii and Aventa Learning Physical Science

Physical Science
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	Doing Science	Doing Science
			PS.1.2 Design and safely implement an experiment, including the appropriate use of tools and techniques to organize, analyze, and validate data	Doing Science	Introductory PS Lab
			PS.1.3 Defend and support conclusions, explanations, and arguments based on logic, scientific knowledge, and evidence from data	Doing Science	Introductory PS Lab
			PS.1.4 Determine the connection(s) among hypotheses, scientific evidence, and conclusions	Doing Science	Bouncing Ball Lab
				Doing Science	Introductory PS Lab
			PS.1.5 Communicate the components of a scientific investigation, using appropriate techniques	Doing Science	Bouncing Ball Lab
				Doing Science	Introductory PS Lab
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>	<p>Doing Science</p> <p>Doing Science</p>	<p>Doing Science</p> <p>Doing Science</p>
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>	Doing Science	Experimental Set-up
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>	Chemical Reactions	Energy and Chemical Reactions
			<p>PS.6.2 Explain how the law of conservation of energy is applied to various systems</p>	Chemical Reactions	Energy and Chemical Reactions
			<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>	Waves	Waves
			<p>PS.6.6 Explain and provide examples of electromagnetic radiation and sound using a wave model</p>	Waves	Waves
				Waves	Sound Waves
				Waves	Electromagnetic Radiation
				<p>PS.6.7 Explain how elements are arranged in the periodic table and describe trends among elemental properties</p>	Atomic Structure and the Periodic Table
<p>PS.6.8 Describe interactions among molecules</p>	Atomic Structure and the Periodic Table	Major Element Types in the Periodic Table			
	Atomic Structure and the Periodic Table	Groups in the Periodic Table			
	Atomic Structure and the Periodic Table	Periodic Trends			
<p>PS.6.9 Describe the factors that affect the rate of chemical reactions</p>	Chemical Bonding	Intermolecular Forces			
	Chemical Reactions	Reaction Rate			

			<p>PS.6.10 Explain how atoms bond using valence electrons</p> <p>PS.6.11 Describe a variety of chemical reactions</p> <p>PS.6.12 Describe nuclear reactions and how they produce energy</p>	<p>Chemical Bonding</p> <p>Chemical Bonding</p> <p>Chemical Bonding</p> <p>Chemical Reactions</p>	<p>Bonding</p> <p>Ionic Bonding</p> <p>Covalent Bonding</p> <p>Types of Reactions</p>
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>	<p>Motion</p> <p>Forces</p> <p>Forces</p> <p>Motion</p> <p>Forces</p> <p>Electricity and Magnetism</p> <p>Electricity and Magnetism</p> <p>Electricity and Magnetism</p>	<p>Newton's First Law</p> <p>Newton's Second Law</p> <p>Newton's Third Law</p> <p>Calculating Speed</p> <p>Gravity</p> <p>Electrical Current</p> <p>Magnetism</p> <p>Earth's Electrical Poles</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		