



Alignment Document  
State of Oregon and Aventa Learning Chemistry

**Chemistry**  
2005-2007 Benchmark Blueprint

Strand	Common Curriculum Goal	Content Standard	Standard	Unit Name	Course Topic Description
<b>SC.CM.SI</b> Scientific Inquiry	Formulate and express scientific questions or hypotheses to be investigated.	Make observations. Formulate and express scientific questions or hypotheses to be investigated based on the observations.	<b>SC.CM.SI.01</b> Based on observations and scientific concepts, ask questions or form hypotheses that can be answered or tested through scientific investigations.	The Scientific Method	The Scientific Method, Significant Figures and Energy: Introduction
<b>SC.CM.SI</b> Scientific Inquiry	Design safe and ethical scientific investigations to address questions or hypotheses.	Design scientific investigations to address and explain questions or hypotheses.	<b>SC.CM.SI.02</b> Design a scientific investigation that provides sufficient data to answer a question or test a hypothesis.	The Scientific Method	The Scientific Method, Significant Figures and Energy: Introduction
<b>SC.CM.SI</b> Scientific Inquiry	Conduct procedures to collect, organize, and display scientific data.	Collect, organize, and display scientific data.	<b>SC.CM.SI.03</b> Collect, organize, and display sufficient data to facilitate scientific analysis and interpretation.	Labs Throughout Course	Examples: Specific heat Lab, Empirical Lab
<b>SC.CM.SI</b> Scientific Inquiry	Analyze scientific information to develop and present conclusions.	Analyze scientific information to develop and present conclusions.	<b>SC.CM.SI.04</b> Summarize and analyze data, evaluating sources of error or bias. Propose explanations that are supported by data and knowledge of scientific terminology.	Labs Throughout Course	Examples: Specific heat Lab, Empirical Lab



<b>SC.CM.PS</b> Physical Science	Understand structure and properties of matter.	Understand structure and properties of matter.	<b>SC.CM.PS.01</b> Describe properties of elements and their relationship to the periodic table.	Atoms/Period Table  Atoms/Period Table  Atoms/Period Table  Atoms/Period Table	Atomic Number, Mass Number, and Isotopes  History of the Periodic Table  Group Names  Trends in the Periodic Table
			<b>SC.CM.PS.01.01</b> Explain atoms and their base components (protons, neutrons, and electrons) as a basis for all matter.	Atoms/Period Table	Atom
			<b>SC.CM.PS.01.02</b> Read and interpret the periodic table, recognizing the relationship of the chemical and physical properties of the elements to their position on the periodic table.	Atoms/Period Table	Trends in the Periodic Table
			<b>SC.CM.PS.01.03</b> Recognize that the historical development of atomic theory demonstrates how scientific knowledge changes over time, and how those changes have had an impact on society.	Atoms/Period Table  Atoms/Period Table	Atom  History of the Periodic Table
			<b>SC.CM.PS.02</b> Analyze the effects of various factors on physical changes and chemical reactions.	Chemistry Fundamentals  Chemistry Fundamentals  Chemistry Fundamentals	Physical Change  Chemical Change  Chemical Versus Physical Properties
<b>SC.CM.PS</b> Physical Science	Understand chemical and physical changes.	Describe and analyze chemical and physical changes.	<b>SC.CM.PS.02</b> Analyze the effects of various factors on physical changes and chemical reactions.	Chemistry Fundamentals  Chemistry Fundamentals  Chemistry Fundamentals	Physical Change  Chemical Change  Chemical Versus Physical Properties



			<p><b>SC.CM.PS.02.01</b> Describe how transformations among solids, liquids, and gases occur (change of state).</p>	<p>Solid, Liquids, and Gases</p> <p>Solid, Liquids, and Gases</p> <p>Solids, Liquids, and Gases</p>	<p>Properties of Gases</p> <p>Liquids and Solids</p> <p>Changes of State</p>
			<p><b>SC.CM.PS.02.02</b> Identify factors that can influence change of state, including temperature, pressure, and concentration.</p>	<p>Solids, Liquids, and Gases</p> <p>Solids, Liquids, and Gases</p> <p>Solids, Liquids, and Gases</p>	<p>Properties of Gases</p> <p>Understanding Gas Laws</p> <p>Changes of State</p>
			<p><b>SC.CM.PS.02.03</b> Describe chemical reactions in terms of reactants and products.</p>	<p>Chemical Reactions</p>	<p>What is a Chemical Reaction?</p>
			<p><b>SC.CM.PS.02.04</b> Describe the factors that affect the rate of chemical reactions.</p>	<p>Reaction Rates An</p>	<p>Kinetics</p>
			<p><b>SC.CM.PS.02.05</b> Recognize examples that show when substances combine or break apart in a chemical reaction, the total mass remains the same (conservation of mass).</p>	<p>Chemical Reactions</p>	<p>What is a Chemical Reaction?</p>
<p><b>SC.CM.PS</b> Physical Science</p>	<p>Understand fundamental forces, their forms, and their effects on motion.</p>	<p>Describe fundamental forces and the motions resulting from them.</p>	<p><b>SC.CM.PS.03</b> Describe and explain the effects of multiple forces acting on an object.</p>		
			<p><b>SC.CM.PS.03.01</b> Understand and apply the relationship <math>F=ma</math> in situations in which one force acts on an object.</p>		
			<p><b>SC.CM.PS.03.02</b> Recognize that equal and opposite forces occur when one object exerts a force on another.</p>		
			<p><b>SC.CM.PS.03.03</b> Describe the forces acting on an object, based on the motion of that object.</p>		



			<b>SC.CM.PS.04</b> Recognize that gravity is a universal force.		
			<b>SC.CM.PS.04.01</b> Describe the relationship of mass and distance to gravitational force.		
<b>SC.CM.PS</b> Physical Science	Understand energy, its transformations, and interactions with matter.	Explain and analyze the interaction of energy and matter.	<b>SC.CM.PS.05</b> Describe differences and similarities between kinds of waves, including sound, seismic, and electromagnetic, as a means of transmitting energy.		
			<b>SC.CM.PS.05.01</b> Recognize that waves of all kinds have energy that can be transferred when the waves interact with matter.		
			<b>SC.CM.PS.05.02</b> Apply the concepts of frequency, wavelength, amplitude, and energy to electromagnetic and mechanical waves.		
			<b>SC.CM.PS.06</b> Describe and analyze examples of conservation of energy.	Thermodynamics	Thermodynamics
				Thermodynamics	Conservation of Energy
			<b>SC.CM.PS.06.01</b> Recognize that heat energy is a by-product of most energy transformations.	Thermodynamics	Thermodynamics
				Thermodynamics	Conservation of Energy
			<b>SC.CM.PS.06.02</b> Describe ways in which energy can be transferred, including chemical reactions, nuclear reactions, and light waves.	Thermodynamics	Thermodynamics
				Thermodynamics	Conservation of Energy
	Nuclear Chemistry	Fission and Fusion			
<b>SC.CM.PS.06.03</b> Explain the difference between potential and kinetic energy.					
<b>SC.CM.PS.06.04</b> Analyze the flow of energy through a system by applying the law of conservation of energy.	Thermodynamics	Thermodynamics			
	Thermodynamics	Conservation of Energy			