

Chemistry

Strand	Common Curriculum Goal	Content Standard	Standard	Unit Name	Course Topic Description
SC.CM.SI 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.	SC.CM.SI.01 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
SC.CM.SI Scientific Inquiry	Design safe and ethical scientific investigations to address questions or hypotheses.	Design scientific investigations to address and explain questions or hypotheses.	SC.CM.SI.02 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
SC.CM.SI Scientific Inquiry	Conduct procedures to collect, organize, and display scientific data.	Collect, organize, and display scientific data.	SC.CM.SI.03 Collect, organize, and display sufficient data to facilitate scientific analysis and interpretation.	Labs Throughout Course	Examples: Specific heat Lab, Empirical Lab
SC.CM.SI Scientific Inquiry	Analyze scientific information to develop and present conclusions.	Analyze scientific information to develop and present conclusions.	SC.CM.SI.04 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
SC.CM.PS Physical Science	Understand structure and properties of matter.	Understand structure and properties of matter.	SC.CM.PS.01 Describe properties of elements and their relationship to the periodic table.	Atoms/Period Table	Atomic Number, Mass Number, and Isotopes
			SC.CM.PS.01.01 Explain atoms and their base components (protons, neutrons, and electrons) as a basis for all matter.	Atoms/Period Table	History of the Periodic Table Group Names Atom

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			SC.CM.PS.01.02 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
			SC.CM.PS.01.03 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	Atom
					History of the Periodic Table
SC.CM.PS Physical Science	Understand chemical and physical changes.	Describe and analyze chemical and physical changes.	SC.CM.PS.02 Analyze the effects of various factors on physical changes and chemical reactions.	Chemistry Fundamentals	Physical Change
					Chemical Change
					Chemical Versus Physical Properties
			SC.CM.PS.02.01 Describe how transformations among solids, liquids, and gases occur (change of state).	Solids, Liquids, and Gases	Properties of Gases
					Liquids and Solids
					Changes of State
			SC.CM.PS.02.02 Identify factors that can influence change of state, including temperature, pressure, and concentration.	Solids, Liquids, and Gases	Properties of Gases
		Understanding Gas Laws			
		SC.CM.PS.02.03 Describe chemical reactions in terms of reactants and products.	Chemical Reactions	What is a Chemical Reaction?	
		SC.CM.PS.02.04 Describe the factors that affect the rate of chemical reactions.	Reaction Rates An	Kinetics	

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			SC.CM.PS.02.05 Recognize examples that show when substances combine or break apart in a chemical reaction, the total mass remains the same (conservation of mass).	Chemical Reactions	What is a Chemical Reaction?
SC.CM.PS Physical Science	Understand fundamental forces, their forms, and their effects on motion.	Describe fundamental forces and the motions resulting from them.	SC.CM.PS.03 Describe and explain the effects of multiple forces acting on an object.		
			SC.CM.PS.03.01 Understand and apply the relationship $F=ma$ in situations in which one force acts on an object.		
			SC.CM.PS.03.02 Recognize that equal and opposite forces occur when one object exerts a force on another.		
			SC.CM.PS.03.03 Describe the forces acting on an object, based on the motion of that object.		
			SC.CM.PS.04 Recognize that gravity is a universal force.		
			SC.CM.PS.04.01 Describe the relationship of mass and distance to gravitational force.		
SC.CM.PS Physical Science	Understand energy, its transformations, and interactions with matter.	Explain and analyze the interaction of energy and matter.	SC.CM.PS.05 Describe differences and similarities between kinds of waves, including sound, seismic, and electromagnetic, as a means of transmitting energy.		
			SC.CM.PS.05.01 Recognize that waves of all kinds have energy that can be transferred when the waves interact with matter.		

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			SC.CM.PS.05.02 Apply the concepts of frequency, wavelength, amplitude, and energy to electromagnetic and mechanical waves.		
			SC.CM.PS.06 Describe and analyze examples of conservation of energy.	Thermodynamics	Thermodynamics Conservation of Energy
			SC.CM.PS.06.01 Recognize that heat energy is a by-product of most energy transformations.	Thermodynamics	Thermodynamics Conservation of Energy
			SC.CM.PS.06.02 Describe ways in which energy can be transferred, including chemical reactions, nuclear reactions, and light waves.	Thermodynamics	Thermodynamics Conservation of Energy
				Nuclear Chemistry	Fission and Fusion
			SC.CM.PS.06.03 Explain the difference between potential and kinetic energy.		
			SC.CM.PS.06.04 Analyze the flow of energy through a system by applying the law of conservation of energy.	Thermodynamics	Thermodynamics Conservation of Energy