

**Beal City High School Pacing Guide for Chemistry**

<b>Beal City High School Pacing Guide for Chemistry</b>				
<b>Chapter</b>	<b>HSCE's</b>	<b>Vocabulary</b>	<b>Pacing</b>	
<b>Unit 1: Introduction to Chemistry and Matter</b>	Chapter 1 : Introduction to Chemistry	HS-PS1-1 Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms.	Matter Chemistry Organic vs. Inorganic Chemistry Biochemistry Analytic Chemistry Pure vs. Applied Chemistry Scientific Method Hypothesis Theory Extensive vs. Intensive Property States of Matter Physical vs. Chemical Changes Mixture Types Filtration Distillation Element vs. Compounds Periods vs. Chemicals Scientific Notation Significant Figures SI Units Energy Levels Quantum Mechanical Model Orbitals and Types Aufbau Principle Pauli Exclusion Principle Hunds Rule Electron Configuration Amplitude Frequency Wavelength EM Radiation Atomic Emission Spectrum Photoelectric Effect Quantum Model Heisenberg Principle	45 Days
	Chapter 2: Matter and Change	HS-PS1-3 Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles.		
	Chapter 5: Electrons in Atoms	HS-PS1-8 Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay. HS-PS2-6 Communicate scientific and technical information about why the molecular level structure is important in the functioning of designed materials. * HS-ETS1-4 Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem.		
<b>Assessments: Chapter Test, Poster Project, Quizzes, Worksheets, Science Journals, Chemical Rxn vs. Physical Rxn Project</b>				

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**Unit 2: Periodic Table and Chemical Reactions**

<b>Chapter</b>	<b>HSCE's</b>	<b>Vocabulary</b>	<b>Pacing</b>
Chapter 6: the Periodic Table Chapter 7: Ionic and Metallic Bonding Chapter 8: Covalent Bonding Chapter 9: Chemical Names and Formulas Chapter 10: Chemical Quantities Chapter 11: Chemical Reactions Chapter 12: Stoichiometry Chapter 13: States of Matter Chapter 14: Behavior of Gasses Chapter 19: Acid, Bases and Salts	<p>HS-PS1-1 Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms.</p> <p>HS-PS1-3 Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles.</p> <p>HS-PS1-8 Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.</p> <p>HS-PS1-2 Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.</p> <p>HS-PS1-4 Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.</p> <p>HS-PS1-5 Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.</p> <p>HS-PS1-6 Refine the design of a chemical system by specifying a change in conditions that would produce increased amounts of products at equilibrium.*</p> <p>HS-PS1-7 Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.</p>	<p>Mendeleev Periodic Law Metals vs. Nonmetals vs Metalloids Alkali vs Alkaline Noble Gases Representative Elements Transitions Metals Cation vs. Anion Electronegativity Valence Electrons Octet Rule Ionic Bonding Covalent Bonding Molecular Compounds Single vs. Double vs. Triple Covalent Bond VSPR Theory Polar vs. Nonpolar Bonds Hydrogen Bonds Polyatomic Ions Binary Compounds Naming Compounds Law of Definite Proportions Mole Avogadro's Number STP Molar Mass &amp; Volume Percent Composition Chemical Equation Synthesis Reaction Decomposition Reaction Single Displacement Reaction Double Displacement Reaction Combustion Stoichiometry Theoretical Yield vs. Actual Yield Kinetic Theory Gas Pressure Vacuum Pascals Standard Atmosphere Vapor Pressure Solids/Liquids/Gases/Plasma Boyles Law Charles Law Gay-Lussacs Law Ideal Gas Effusion Acids vs. Bases</p>	130 Days
<b>Assessments: Chapter Test, Poster Project, Quizzes, Worksheets, Science Journals, Element Project, Labs, Simulations</b>			

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<b>Unit 3: Nuclear and Electro Chemistry</b>	<b>Chapter</b>	<b>HSCE's</b>	<b>Vocabulary</b>	<b>Pacing</b>
	Chapter 15: Water and Aqueous Systems	HS-PS1-8 Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.	HS-PS1-5 Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.  HS-PS1-7 Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.	Surface Tension
Chapter 21: Electrochemistry	HS-PS1-5 Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.	Surfactant		
Chapter 24: The Chemistry of Life	HS-PS1-7 Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.	Solute		
Chapter 25: Nuclear Chemistry	HS-PS1-7 Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.	Solvent		
			Electrolyte	
			Oxidation	
			Reduction	
			Electrode	
			Anode	
			Cathode	
			Battery	
			Dry Cell	
			Electrolysis	
			Polysaccharides	
			Monosaccharides	
			Carbohydrates	
			Lipids	
			Amino Acids	
			Proteins	
			Triglyceride	
			Phospholipids	
			Radioactivity	
			Radioisotopes	
			Alpha Particle	
			Beta Particle	
			Gamma Ray	
			Nuclear Force	
			Half Life	
			Transmutation	
			Fission	
			Neutron Absorption	
			Ionization Radiation	
			Radioisotopes	
<b>Assessments: Chapter Test, Poster Project, Quizzes, Worksheets, Science Journals, Element Project, Labs, Simulations</b>				