

Pacing Guide: CHEM A		UNIT 2 Matter and its properties			
Content and Duration	Content Expectation (GLCE/HSCE)	Student Learning Targets	Content Vocabulary	Required Activities	Common Assessments and Rubrics
ATOMIC STRUCTURE ELECTRON CONFIGURATION NUCLEAR CHEMISTRY PERIODIC TABLE	P4.p1 Kinetic Molecular Theory (prerequisite)	<ul style="list-style-type: none"> <li>Tell me how all particles move in different phases of matter</li> <li>Draw the space and show movement of particles</li> </ul>	Kinetic	Candium lab Flame Test Nuclear from "HOPE"	
ATOMIC MASS 4wks	P4.p2 Elements, Compounds, and Mixtures (prerequisite)	<ul style="list-style-type: none"> <li>Tell me the difference between element, compound and mixture</li> <li>Tell what is pure</li> <li>Separate mixtures by physical properties</li> </ul>	Pure Homogenous Heterogenous Colloid Distillation		
	C4.3 Properties of Substances	<ul style="list-style-type: none"> <li>Recognize attraction between particles is different in different phases</li> <li>Compare the force of attraction</li> <li>Predict the force based on location on periodic table</li> <li>Predict physical properties based on the forces of attraction</li> </ul>	Chemical Physical Ionic Covalent Metallic		

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	C4.8 Atomic Structure	<ul style="list-style-type: none"> <li>Tell the location of the neutron, proton, and electron</li> <li>Describe the mostly empty space of an atom</li> <li>Realize the strong force to hold the nucleus together</li> <li>Calculate number of proton, neutron and electron, given atomic number, mass and charge</li> </ul>	Nucleus Proton Neutron Electron Neutral % abundance Electron configuration		
	C4.8x Electron Configuration	<ul style="list-style-type: none"> <li>Write complete electron config. for 1<sup>st</sup> 4 rows</li> <li>Write kernel structures for main group.</li> <li>Predict oxidation states</li> <li>Describe s and p orbitals</li> <li>Describe uncertainty principle</li> </ul>	Orbital Energy level "s,p,d,f" aufbau heisenburg Pauli exclusion		

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	C2.4x Electron Movement	<ul style="list-style-type: none"> <li>Describe energy changes in electrons</li> <li>Contrast absorbing energy to emitting</li> </ul>	Quantum Absorption Emission Spectra		
	C4.9 Periodic Table	<ul style="list-style-type: none"> <li>Identify elements with similar properties, 5 main families.</li> <li>Identify metals, nonmetals, metalloids</li> <li>Predict general trends. Size ionization energy. Etc.</li> </ul>	Period Family Alkali Alkaline Halogen Noble gas Lanthanides Metalloid Metal/nonmetal		
	C4.10 Neutral Atoms, Ions, and Isotopes	<ul style="list-style-type: none"> <li>List protons, neutrons, electrons, for a given isotope, ion.</li> <li>Recognize protons, are identity</li> <li>Calculate average atomic mass from abundance</li> <li>Predict greatest abundance by mass</li> <li>Write the symbol using, <math>z</math>, <math>m</math>, and <math>A</math></li> </ul>	Cation Anion Average atomic mass Isotope		

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	P5.p1 Conservation of Matter (prerequisite)	<ul style="list-style-type: none"> <li>Calculate mass out from starting mass</li> </ul>			
	C5.5 Chemical Bonds — Trends	<ul style="list-style-type: none"> <li>Predict bonds from periodic table and electron config.</li> <li>Predict formula for binary compounds</li> </ul>	Ionic Covalent Metallic		
	C2.5x Nuclear Stability	<ul style="list-style-type: none"> <li>Balance nuclear reactions</li> <li>Determine age using <math>\frac{1}{2}</math> life</li> <li>Understand shielding for different types of radiation</li> <li>Discuss every day use of nuclear radiation</li> </ul>	$\frac{1}{2}$ life Stability Alpha Gamma Beta		
	C3.5x Mass Defect	<ul style="list-style-type: none"> <li>Explain how matter is not conserved in nuclear reactions</li> <li>Discuss what <math>E=mc^2</math> means</li> </ul>	Fission fusion		