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| **Unit 1**  **3 weeks** | **Unit 2**  **3.5 weeks** | **Unit 3**  **5 weeks** | **Unit 4**  **1.5 weeks** | **Unit 5**  **2.5 weeks** | **Unit 6**  **2.5 weeks** | **SLO Exam** |
| **Unit 1: Atomic Structure**  **Focus Standard: SC1** | **Unit 2: Bonding and Compounds**    **Focus Standard: SC2** | **Unit 3: Reactions**  **Focus Standards: SC3** | **Unit 4: Reaction Rates and Equilibrium**  **Focus Standards: SC4** | **Unit 5: Thermochemistry and Gas Laws**  **Focus Standard: SC5** | **Unit 6: Solutions and Acids and Bases**  **Focus Standard: SC6** |  |
| **Unit 1 Topics:**  Merits and limitations of atomic models (SC1a)  Support the claim that the proton defines and element’s identity (SC1b)  Explain the production of elements heavier than hydrogen by nuclear fusion (SC1c)  Explain isotopes and atomic mass (SC1d)  Explain light emission and movement of electrons to identify elements (SC1e)  Use the periodic table to predict properties of elements (atomic radius, ionization energy, electronegativity) (SC1f)  Develop and use electron configuration and orbital diagrams to predict an element’s chemical properties (SC1g) | **Unit 2 Topics:**  Compare physical and chemical properties to determine strengths of inter and intramolecular (SC2a)  Identify substances by chemical and physical properties based on intermolecular forces (SC2b)  Explain importance of molecular level structure in the function of designed materials (SC2c)  Develop and use models to evaluate bonding configurations from nonpolar covalent to ionic bonding (SC2d)  Identify patterns in IUPAC nomenclature to predict chemical names (SC2e)  Predict chemical formulas (SC2f)  Release or absorption of energy from a chemical reaction depends in changes in total bond energy (SC2g) | **Unit 3 Topics:**  Write, balance, and predict products of synthesis, decomposition, combustion, single replacement and double replacement reactions (SC3a)  Investigate indicators of a chemical reaction (SC3b)  Apply concepts of the mole and Avogadro’s number to calculate % composition, empirical/molecular formulas, mass, moles, and molecules relationships, and molar volume of gases (SC3c)  Identify and solve stoichiometry problems using significant figures (SC3d)  Demonstrate the conceptual principle of limiting reactants (SC3e) | **Unit 4 Topics:**  Provide evidence of the effects of changing concentration, temperature, and pressure on chemical reactions (SC4a)  Explain the role of activation energy using collision theory and transition state theory of chemical reactions (SC4b)  Explain the effects of a catalyst on chemical reactions and the applications in everyday life (SC4c)  Refine the design of a chemical system by altering conditions that would change the forward and reverse rates and amount of products at equilibrium (SC4d) | **Unit 5 Topics:**  Investigate and gather data to calculate the amount of heat absorbed or released by chemical or physical processes (SC5a)  Explain the effects of energy and intermolecular forces on phase changes using a heating curve (SC5b)  Develop and use models to quantitatively, conceptually, and graphically represent the relationships between pressure, volume, temperature, and the number of moles of a gas. (SC5c) | **Unit 6 Topics:**  Illustrate the process of solvation versus dissociation (SC6a)  Investigate factors that affect the rate at which a solute dissolves (SC6b)  Evaluate commercial products using molarity and percent by mass (SC6c)  Explain how to prepare and label solutions of specified molarities (SC6d)  Explain the effects of a solute on boiling point and freezing point (SC6e)  Compare, contrast, and evaluate the nature of acids and bases in terms of percent dissociation, hydronium ion concentration, and pH. (SC6f)  Evaluate merits of Arrhenius and Bronsted-Lowry models (SC6g)  Investigate and explore acid-base neutralization (SC6h) |  |
| **Unit 1**  **6 weeks** | **Unit 2**  **7 weeks** | **Unit 3**  **10 weeks** | **Unit 4**  **3 weeks** | **Unit 5**  **5 weeks** | **Unit 6**  **5 weeks** | **SLO Exam** |
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