

Chemistry Curriculum Map  
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Unit Number and Title	Brief Description	Estimated Length	Estimated Time of Year
<u>1 – Matter and Measurement</u> <i>Properties of Matter</i>	<ul style="list-style-type: none"> <li>- Law of Conservation of Mass</li> <li>- Mass, Volume, Density</li> <li>- Significant Figures</li> <li>- Scientific Notation</li> <li>- Dimensional Analysis</li> <li>- Metric Units</li> </ul>	3 weeks	Aug – Mid Sept.
<u>2 – Gasses and Pressure</u> <i>Particles Interact via collisions</i>	<ul style="list-style-type: none"> <li>- States of Matter</li> <li>- Diffusion</li> <li>- Thermometers and Temperature</li> <li>- Pressure</li> <li>- Kinetic Molecular Theory</li> <li>- Ideal Gas and Combined Gas Equations</li> </ul>	3 weeks	End Sept. – Early Oct.
<u>3 – Energy, Heating Curves, Calorimetry</u> <i>Energy transfer between particles</i>	<ul style="list-style-type: none"> <li>- Physical vs Chemical changes</li> <li>- Heating curves</li> <li>- Endothermic vs Exothermic reactions</li> <li>- <math>Q=mc\Delta T</math> calculations</li> <li>- Calorimetry</li> </ul>	3 weeks	Early Oct. – End of Oct.
<u>4 – Describing Substances</u> <i>Particles can “stick together” in specific ratios</i>	<ul style="list-style-type: none"> <li>- Pure Substances vs Mixtures</li> <li>- Techniques to separate mixtures</li> <li>- Avogadro’s Hypothesis</li> <li>- Diatomic Elements</li> <li>- Mass Ratios</li> </ul>	3 weeks	Early Nov. – Thanksgiving Break
<u>5 – Models of the Atom and Atomic Structure</u> <i>Particles (now called atoms) have internal structure</i>	<ul style="list-style-type: none"> <li>- History of the Atomic Theory (Democritus, Dalton, Thomson, Millikan, Rutherford, Bohr, Schrodinger)</li> <li>- Metals vs. Nonmetals</li> <li>- Counting protons, neutrons, and electrons in atoms and isotopes.</li> <li>- Calculating Average atomic mass</li> <li>- Electron configurations and Orbital diagrams</li> </ul>	3 weeks	End of Nov. – End of Dec.
<b>End of first semester</b>			
<u>6 – Periodic Table and Trends</u> <i>Atoms are grouped on the Periodic Table according to similar properties</i>	<ul style="list-style-type: none"> <li>- How the Periodic Table is organized</li> <li>- Trends of Ionization Energy, Radius, Electronegativity, and family properties</li> <li>- Bohr Models</li> <li>- Valence Electrons, Ions, and Stability</li> </ul>	2.5 weeks	Early Jan. – Mid Jan
<u>7 – Bonding and Nomenclature</u> <i>Different types of bonds leads to different properties of substances</i>	<ul style="list-style-type: none"> <li>- Atomic vs Ionic vs Molecular substances</li> <li>- Lewis Structures</li> <li>- Molecular Geometry, Polarity, IMF</li> <li>- Naming and writing formulas for Molecular compounds</li> <li>- Naming and writing formulas for Ionic compounds</li> </ul>	2.5 weeks	Mid Jan. – Early Feb.

<u>8 – The Mole</u> <i>How to “weigh” extremely small atoms</i>	<ul style="list-style-type: none"> <li>- Relative Mass</li> <li>- Molar Mass</li> <li>- Gram to mole to particle conversions</li> <li>- Empirical and Molecular formulas</li> <li>- Percent composition</li> </ul>	3 weeks	Mid Feb. – Spring Break
<u>9 – Chemical Reactions</u> <i>Formation of new substances</i>	<ul style="list-style-type: none"> <li>- Balancing Equations</li> <li>- Types of Reactions</li> <li>- Predicting Products</li> <li>- Energy in Chemical Reactions</li> </ul>	3 weeks	Mid March – Early April
<u>10 – Stoichiometry</u> <i>Predicting amounts of reactants or products</i>	<ul style="list-style-type: none"> <li>- Mole ratios</li> <li>- Calculating amounts of reactants or products</li> <li>- Limiting Reactants and Excess reactants</li> <li>- Percent Yield</li> </ul>	3 weeks	Early April – Late April
<u>11 – Solutions</u> <i>Deeper into homogenous mixtures</i>	<ul style="list-style-type: none"> <li>- Solubility curves</li> <li>- Solubility rules</li> <li>- Molarity, percent mass</li> <li>- How to prepare solutions</li> <li>- Colligative properties</li> </ul>	2 weeks	Late April – Early May
<u>12 – Acids and Bases</u> <i>The effect of hydrogen ions</i>	<ul style="list-style-type: none"> <li>- Acid vs. Base characteristics</li> <li>- pH, [H<sup>+</sup>], [OH<sup>-</sup>]</li> <li>- neutralization reactions</li> <li>- Titrations</li> <li>- Applications in the environment</li> </ul>	2 weeks	Mid May – End of Year