

## Science / Chemistry

Time Frame	SOL Objective/ Competency	Essential Understandings/Questions	Essential Knowledge/Skills
<b>1<sup>st</sup> Quarter</b> (First 4½ Weeks)	CH.1a-j CH.2a,b,c,d,e,g,h,i CH.3a,c,d CH.6a,b	Scientific Experiments  Matter  The Atom    The Periodic Table Bonding	<b>Lab</b> techniques, safety, equipment, data analysis, scientific method, error analysis, dimensional analysis, technology, scientific viewpoint, current applications. <b>Chemical</b> & physical properties. <b>Atomic</b> mass, atomic number, mass number, isotopes, half-life, radioactive decay, subatomic particles, electron configurations, valence electrons, oxidation numbers, quantum & historical models. <b>Families</b> , groups, periods. <b>Nomenclature</b> , bonding types, chemical formulas.

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<b>2<sup>nd</sup> Quarter</b> (Second 4½ Weeks)	CH.1a-j CH.2f,g,h CH.3a,b,c,d,e	Scientific Experiments    Periodic Trends   Bonding & Chemical Reactions	<b>Lab</b> techniques, safety, equipment, data analysis, scientific method, error analysis, dimensional analysis, technology, scientific viewpoint, current applications <b>Atomic</b> radii, electronegativity, shielding effect, ionization energy. Oxidation numbers <b>Nomenclature</b> , bonding types, chemical formulas, carbon-based compounds, pharmaceuticals, polymers. Balancing equations, reaction types.

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3 <sup>rd</sup> Quarter (Third 4½ Weeks)	CH.1a-j CH.4a,b,c CH.5a,b,c,d,g	Scientific Experiments  The Mole & Stoichiometry  States of Matter  Gas Laws  Solutions	<b>Lab</b> techniques, safety, equipment, data analysis, scientific method, error analysis, dimensional analysis, technology, scientific viewpoint, current applications <b>Avogadro's</b> principle, particle/mole/mass/volume conversions, limiting reactant, percent yield <b>Kinetic</b> molecular theory, pressure, temperature, volume, partial pressure, vapor pressure, phase changes. <b>Boyles' Law</b> , Charles' Law, Ideal Gas Law, molar volume. <b>Colligative</b> properties, solution concentrations
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4 <sup>th</sup> Quarter (Last 4½ Weeks)	CH. 1a-j CH.3e,f CH.4d CH.5e,f	Scientific Experiments  Acids & Bases  Thermochemistry  Kinetics  Chemical Equilibrium  Redox Reactions	<b>Lab</b> techniques, safety, equipment, data analysis, scientific method, error analysis, dimensional analysis, technology, scientific viewpoint, current applications <b>Acid/base</b> theory, ionization, pH & pOH, titration, electrolytes, neutralization reactions <b>Molar</b> heats of fusion & vaporization, specific heat capacity. <b>Reaction rates</b> , activation energy, catalysis, entropy. <b>Le Chatelier's</b> principle, factors that affect equilibrium. <b>Recognize</b> reduction & oxidation.