

Name: \_\_\_\_\_ Period: \_\_\_\_\_ Exam Date: \_\_\_\_\_

**STUDY GUIDE: Unit 4 Exam: Crash Course Chemistry:** The following information is a list of concepts, ideas, and vocabulary that you learned through participating in Unit 4. My recommendation is that you review each and every activity and focus on the key points from each activity. Please use this "Study Guide" as a checklist of what you know and what you need to brush up on.

<b>Activity</b>	<b>Big Ideas from each Activity - Concepts to study</b>	<b>Vocabulary</b> (Index words in <b>bold</b> )	<b>Questions/Notes</b>
<b>Identifying Elements</b>	<ul style="list-style-type: none"> <li>Counting atoms in a chemical formula – Rules to follow</li> <li>Understanding "subscript" and "chemical symbols" in a formula</li> <li>Using "Coefficient(s)" to balance an equation. Showing the -----&gt;</li> </ul>	<ul style="list-style-type: none"> <li><b>Chemical Symbol</b></li> <li><b>Chemical Formula</b></li> <li><b>Chemical Equation</b></li> <li><b>Subscript</b></li> <li><b>Coefficient</b></li> <li><b>Law of Conservation of Mass</b></li> </ul>	
<b>Atomic Structure and the P.T.E.</b>	<ul style="list-style-type: none"> <li>Viewing an "Element Block" to determine the amount of particles in an atom of an element.</li> <li>Using the Bohr Model to show total Electron configuration</li> <li>Location of Valence Electrons</li> </ul>	<ul style="list-style-type: none"> <li><b>Atomic Number</b></li> <li><b>Atomic Mass</b></li> <li><b>Proton</b></li> <li><b>Neutron</b></li> <li><b>Electron</b></li> <li><b>Valence Electrons</b></li> </ul>	
<b>Evidence of a Chemical Reaction Part 1</b> (Magnesium and Vinegar Lab)	<ul style="list-style-type: none"> <li>Chemical changes are not easily reversible and always result in a NEW substance.</li> <li>Observing changes throughout reaction</li> <li>Writing balanced chemical equations</li> <li>(left)Reactants ---&gt; Products (right)</li> </ul>	<ul style="list-style-type: none"> <li><b>Reactant</b></li> <li><b>Product</b></li> <li>Review results of the flame test on Hydrogen gas</li> </ul>	
<b>Evidence of a Chemical Reaction - Heat</b> (Hydrogen Peroxide and Catalyst Lab)	<ul style="list-style-type: none"> <li>Identifying evidence of chemical a reaction.</li> <li>Use of a Catalyst to change reaction rate</li> <li>Example of "Decomposition Reaction"</li> <li>Practice balancing equation</li> </ul>	<ul style="list-style-type: none"> <li><b>Decompose</b></li> <li><b>Synthesize</b></li> <li><b>Catalyst</b></li> <li>Glowing splint was used to test O<sub>2</sub></li> </ul>	
<b>Flame Test</b> (Excited Electrons lab)	<ul style="list-style-type: none"> <li>Identifying elements from a flame test.</li> <li>(+) Metal Ions LOSE valence electron(s)</li> <li>(-) Nonmetal Ions Gain valence electron(s)</li> </ul>	<ul style="list-style-type: none"> <li><b>Ions</b></li> <li><b>Valence Electron</b></li> <li>Showing charge of atom (+) or (-)</li> </ul>	
<b>Balancing Chemical Equations Practice</b>	<ul style="list-style-type: none"> <li>Start Mass = End Mass</li> <li>Counting the reactant atoms and product atoms</li> <li>Using only coefficient to balance both sides of the equation</li> <li>Purpose is to show the "LAW OF CONSERVATION OF MASS"</li> </ul>	<ul style="list-style-type: none"> <li>Counting Atoms</li> <li><b>Chemical Equation</b></li> <li><b>Coefficient</b></li> <li>Balanced vs. Unbalanced</li> <li><b>Reactants</b> (left of arrow)</li> <li><b>Products</b> (right of arrow)</li> </ul>	

## Important skills to focus on:

- Reading the information in an “Element Block” to determine the amount of subatomic particles in each atom – Pg. \_\_\_\_\_
- Structure of an Atom: location, mass, and charge of Protons, Neutrons, and Electrons. – Pg. \_\_\_\_\_
- Bohr Model of an Atom – understanding electron configuration. Lewis Dot Structures – Showing only Valence Electrons– Pg. \_\_\_\_\_
- Patterns of the Periodic Table of the Elements (Groups, Periods, Valence Electrons) – Pg. \_\_\_\_\_
- Reason for tracking mass from beginning to end during chemical reaction experiments – Pg. \_\_\_\_\_
- Counting Atoms in a chemical formula (using chemical symbols and subscript) – Pg. \_\_\_\_\_
- Counting atoms in a chemical equation to determine if it is balanced or unbalanced – Pg. \_\_\_\_\_
- Balancing chemical equations (using the “column method” to help count atoms and show work) – Pg. \_\_\_\_\_
- 4 Types of Chemical Reactions – (Synthesis, Decomposition, Single Replacement, or Double Replacement) – Pg. \_\_\_\_\_