

### AP Chemistry: Summer Assignment Content Objectives

*Read the following sections in the textbook and complete the problems. The videos are **optional** and should help you with the problems if you get stuck. **Show all work for problems.***

	Objective	Learning Targets
1	<p>Significant Figures</p> <ul style="list-style-type: none"> <li>● Read pages 14-17 (Section 1.5)</li> <li>● Videos                             <ul style="list-style-type: none"> <li>○ <a href="#">Significant Figures Video (Part 1)</a> (17:34)</li> <li>○ <a href="#">Significant Figures (Part 2)</a> (14:01)</li> </ul> </li> <li>● <b>Problems pg 34: #31, 33, 35, 37, 39a,e, 41b,f</b></li> </ul>	<p>I can count the number of significant digits given a measurement                      I can compare and contrast accuracy and precision                      I can calculate percent error and use it to evaluate accuracy and precision of data                      I can round numbers to the correct number of significant digits in calculations                      I can write measured data with correct significant digits                      I can evaluate data and determine its accuracy and precision</p>
2	<p>Unit Conversions</p> <ul style="list-style-type: none"> <li>● Read pages 18-26 (Section 1.7-1.8)</li> <li>● Videos                             <ul style="list-style-type: none"> <li>○ <a href="#">Dimensional Analysis Video</a> (12:54)</li> <li>○ <a href="#">Cube Units Dimensional Analysis</a> Video (3:52)</li> </ul> </li> <li>● <b>Problems pg 34: #43, 45a, 51, 55, 61a</b></li> </ul>	<p>I can manipulate the conversion factor correctly and can make one step conversions                      I can make multistep one type of unit conversions                      I can make mixed unit conversion such as density g/mL                      I can make square or cube unit conversions</p>
3	<p>Density Calculations</p> <ul style="list-style-type: none"> <li>● Read page 26-27 (Section 1.9)</li> <li>● Videos                             <ul style="list-style-type: none"> <li>○ <a href="#">Density Video</a> (20:51)</li> </ul> </li> <li>● <b>Problems pg 34: #69, 73, 75, 77c, 81, 107</b></li> </ul>	<p>I can work simple problems involving mass and volume                      I can identify the missing variable mass, volume, density.                      I can calculate density using volume formula for regular solids.</p>
4	<p>Classification of Matter</p> <ul style="list-style-type: none"> <li>● Read pages 27-30 (Section 1.10)</li> <li>● Videos                             <ul style="list-style-type: none"> <li>○ <a href="#">Classification of Matter Video</a> (14:50)</li> <li>○ <a href="#">Physical and Chemical Properties and Changes Video</a> (18:35)</li> </ul> </li> <li>● <b>Problems pg 34: #83, 85, 87, 89, 91</b></li> </ul>	<p>I can identify substances as element, compounds, heterogeneous mixtures, or solutions                      I can label physical and chemical properties and changes                      I can classify materials element, compounds, heterogeneous mixtures, or solutions when given descriptions of properties or lab data                      I can choose the best methods of separation of mixtures and solutions. Including manual, chromatography, evaporation, crystallization, decanting, and distillation.</p>
5	<p>Atomic Theory</p> <ul style="list-style-type: none"> <li>● Read page 35-53 (Sections 2.1-2.7)</li> <li>● Videos                             <ul style="list-style-type: none"> <li>○ <a href="#">Periodic Table Basics Video</a> (11:08)</li> <li>○ <a href="#">Subatomic Particle Quick Notes Video</a> (4:32)</li> <li>○ <a href="#">Isotope Notes</a> (18:05)</li> </ul> </li> <li>● <b>Problems pg 67: #57, 61, 63, 65, 71, 73</b></li> </ul>	<p>I can draw a basic Bohr model of the atom labeling the parts.                      I can describe the role the electron, proton and neutron plays in the function of the atom                      I can list the oxidation numbers of representative elements                      I can explain the history of the atom including Thomson, Rutherford, Bohr                      I can describe isotopes and ions                      I can count the number of protons, electrons and neutrons given an isotope notation of both atoms and ions.                      I can identify particles that are isoelectronic with each other</p>

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6	<p>Nomenclature</p> <ul style="list-style-type: none"><li>• Read page 53-63 (Section 2.8)</li><li>• Videos<ul style="list-style-type: none"><li>◦ <a href="#">Naming and Writing Binary Ionic Compounds</a> Video (14:06)</li><li>◦ <a href="#">Polyatomic Ions and Acids Video</a> (7:04)</li><li>◦ <a href="#">Naming Overview Video</a> (6:44)</li><li>◦ <a href="#">Polyatomic Ions Video</a> (7:25)</li></ul></li><li>• <b>Problems pg 67: #75-82, 89, 92 and <a href="#">Nomenclature POGIL</a></b></li></ul>	<p>I can name simple binary ionic compounds I can name type 2 binary ionic compounds I can name common polyatomic ions and their relatives. I can name ionic compounds containing polyatomic ions. I can identify and name covalent compounds using prefixes. I can name binary and ternary acids</p>
7	<p>Phase Changes</p> <ul style="list-style-type: none"><li>• Read page 415-427 (Section 10.8-10.9)</li><li>• Videos<ul style="list-style-type: none"><li>◦ <a href="#">Heating Curves Video</a>(14:21)</li><li>◦ <a href="#">Phase Diagrams Video</a>(10:30)</li></ul></li><li>• <b>Problems pg 432: #97, 98, 99, 105 and <a href="#">Phase Change Problems Worksheet</a></b></li></ul>	<p>I can draw heating and cooling curves given melting and boiling point data of substances and label endothermic, exothermic, and kinetic and potential energy changes. I can describe how the heat of fusion and the heat of vaporization can be used to calculate the energy needed to go through phase changes I can use the correct formulas and determine the amount of heat needed to be lost or gained through heating, cooling and phase changes. I can interpret a phase diagram and label various points on the phase diagram</p>