Name: _____ Date: _____

UNIT 2 STUDY GUIDE

<table>
<tr><th>Concept</th><th>What is important?</th><th>Examples</th></tr>
<tr>
<td>Classifying matter based on…</td>
<td>

Pure Substances can be elements or compounds.
Mixtures are NOT pure substances.
Particle diagrams
Symbols/formulas
Descriptions

</td>
<td>
Elements –
On Table S, can't be broken down, all atoms are the same

Compounds –
Made up of 2+ different elements bonded

Homogeneous mixtures –
Made up of 2+ different substances (elements or compounds or both) physically blended, evenly scattered

Heterogeneous mixtures –
Made up of 2+ different substances (elements or compounds or both) physically blended, unevenly scattered (sorted)
</td>
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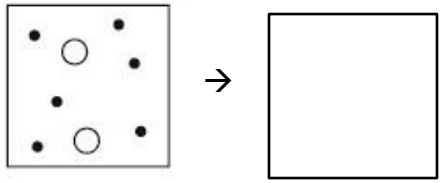
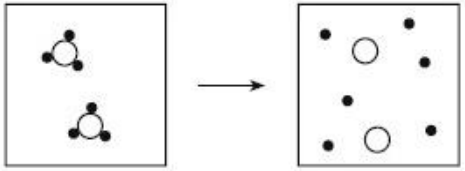
<tr>
<td>Identify states of matter using…</td>
<td>

Particle diagrams
Descriptions

</td>
<td>
1. Complete the particle diagram below to show what the substance would look like after evaporating. Hg(l) → Hg(g)

2. Complete the box below by writing (Y) yes or (N) no.
<table>
<tr><th>Phase</th><th>Definite Shape</th><th>Definite Volume</th></tr>
<tr><td>Solid</td><td></td><td></td></tr>
<tr><td>Liquid</td><td></td><td></td></tr>
<tr><td>Gas</td><td></td><td></td></tr>
</table>
3. What is aqueous (aq)?
</td>
</tr>
</table>

Physical techniques used to separating mixtures	□ Filtration □ Distillation □ Chromatography □ Evaporation	1. What types of mixtures can each separate? 2. What different properties make these separations possible? 3. What is the difference between fractional distillation and simple distillation?
Properties of matter	□ Physical □ Chemical	1. The volume of the liquid is 25.8 mL. Is this a physical or chemical property? How do you know? 2. NaCl is soluble in water. Is this a physical or chemical property? How do you know? 3. Baking soda can react with vinegar to form a gas. Is this a physical or chemical property of baking soda? How do you know?

Recognizing physical changes by…	□ Particle diagrams □ Descriptions □ Equations	1. Draw a physical change:  2. What are some examples of physical changes? 3. Why does this equation represent a physical change? $NaCl(s) + H_2O(l) \rightarrow NaCl(aq)$
Recognizing chemical changes by…	□ Particle diagrams □ Descriptions □ Equations	1. Does the diagram below represent a physical or chemical change? How do you know?  2. Does the diagram support or refute the Law of Conservation of Mass? EXPLAIN. 3. Why does this reaction represent a chemical change? **$Al(s) + CuSO_4(aq) \rightarrow Al_2(SO_4)_3(aq) + Cu(s)$**

Periodic Table Intro	□ Compounds vs. Elements □ Table S	1. Know the location of the metals, metalloids, nonmetals, and noble gases on the Periodic Table & use Table S to locate element names from their symbols 2. Consider the following substances: Co, CO, $MgCl_2$, Cl_2 - Which are considered compounds and how do you know?
Compound Formulas	□ Reading compound formulas	1. Determine the number of molecules, atoms of each element, and total atoms for each of the following: 2 $(NH_4)_3PO_4$ 3 $Ba(NO_3)_2$

<u># Molecules # Each Atom # Total Atoms</u>