

CLASS SET!! DO NOT TAKE!! DO NOT WRITE ON!!

Alchemy Unit Concepts Review

1. Create charts similar to this one and fill in the similarities and differences for the bond types. Use your brain!! There is something you can put in every box!

Ionic vs. Molecular Covalent		Ionic vs. Covalent Network		Ionic vs. Metallic	
<u>Similarities</u>	<u>Differences</u>	<u>Similarities</u>	<u>Differences</u>	<u>Similarities</u>	<u>Differences</u>
2					
Metallic vs. Molecular Covalent		Metallic vs. Covalent Network		Molecular Covalent vs. Covalent Network	
<u>Similarities</u>	<u>Differences</u>	<u>Similarities</u>	<u>Differences</u>	<u>Similarities</u>	<u>Differences</u>

2. What is the difference between core electrons and valence electrons? Calculate the number of core and valence electrons for O, Mg, Sn, and Pb.
3. Write the electron configurations for the following elements:
- a. O
 - b. Ca
 - c. Mo
 - d. I
 - e. S
4. What is an isotope? Predict the different isotopes for the following elements and write your answer in isotope symbols. Circle the isotope that is found in more abundance.
- a. Li
 - b. Sr
 - c. Si
 - d. Sb
5. On your paper, sketch an outline of the periodic table. On your sketch, label the following groups and trends:
- a. Noble Gases
 - b. Alkali Earth metals
 - c. Transition metals
 - d. Halogens
 - e. Alkali metals
 - f. Metals vs. nonmetals (where does H belong?)
 - g. Trend for atomic number (both across a period and down a group)
 - h. Trend for atomic radius (size) (both across a period and down a group)
 - i. Trend for reactivity down a group
 - j. Trend for softness of metals down a group
 - k. Trend for making similar compounds in a group
 - l. Trend for electronegativity

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6. In the periodic table, in general which elements will have similar properties?

7. Create a chart and fill in the information:

	<u>Metal-nonmetal compounds</u>	<u>Metal only compounds</u>	<u>Nonmetal compounds (hard solids)</u>	<u>Nonmetal compounds (g, l, soft solids)</u>
Dissolves?				
Conducts electricity when NOT dissolved?				
Conducts electricity when dissolved?				
Kind of bond holding it together?				

8. Create a chart and fill in the information:

	<u># Valence electrons</u>	<u>Will it gain or lose electrons? How many?</u>	<u>What will be its charge?</u>	<u>What kind of ion will it be?</u>
Na				
Sr				
Rb				
Al				
Br				
S				
N				
Li				
Ne				

9. Know the formula for density and how to solve density problems.

10. Know how to solve nuclear equations (alpha and beta decay).

11. Know the sig fig rules to identify the number of sig figs in a number and round when calculating.

12. Know how to determine in which ratio metals and nonmetals with bond. Ex: What is the resulting chemical formula for when sodium and oxygen react?

13. Know how to name ionic compounds, as well as ones with polyatomic ions.

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