

Name _____ Date _____ Hour _____

Reading Guide Achieving Stability and Types of Bonds

We will be combining two different chapters for this topic. Please read the following pages from your chemistry text, then answer the questions.

Pgs 128-145

1. What parts of the atom are involved in a chemical reaction?
2. Look at Figure 4.13, what is needed for a chemical reaction to occur?
3. How many valence electrons does group 18 have? Why does this make them special?
4. What does the octet rule tell us?
5. All atoms are trying to achieve stability, in what two ways can an atom achieve the magic number of eight electrons?
6. How many valence electrons does sodium have, how about chlorine? Draw a lewis dot structure to show your answer.
7. What happens to sodium once it has lost an electron? What happens to chlorine once it has gained an electron? What kind of bond forms between them?
8. What are melting points of ionic compounds usually extremely high temperatures?
9. What's a chemical formula tell us?
10. When do atoms share electrons? What type of bond is formed when this happens?
11. Complete the following statement
 - a. To achieve stability atoms can either _____ or _____.
12. What are 3 characteristics that are shared by most ionic compounds? What are 3 characteristics of covalent compounds?
13. How do the forces between the particles of an ionic compound differ from the forces within a covalent compound?

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14. In what two ways do atoms form bonds? Why do they want to form bonds?
15. What is electronegativity? What does it mean to have a high electronegativity?
16. In terms of an element's electronegativity, what trend do we see as we move down a group? Why does this happen?
17. What is the trend in electronegativity across a period?
18. What symbol do we use to note an element's electronegativity? What does each part stand for?
19. How do we calculate the difference in electronegativity? What is the difference in electronegativity for the compound sodium chloride?
20. What type of bond is formed when the electronegativity difference is greater than 2.0? Give two examples of compounds that have an electronegativity difference greater than 2.0
21. What type of bond is formed when the electronegativity difference is between 0 and 0.5?
22. What type of bond is formed when the electronegativity difference is between 0.5 and 2.0? Why do we use the term "Polar" to describe these molecules?
23. Complete Practice Problems 1 and 2 on page 310.