**Unit 2 – Chemical Bonding Review Assignment**

**Instructions**: Use the class website ([**www.nsdscience.weebly.com**](http://www.nsdscience.weebly.com)) and any other online resource to complete the following questions and prompts. Use complete sentences for all solutions and answers. Do NOT copy and paste material as your written answers. You may copy/paste images and graphs to support your explanations and descriptions. Show all equations, and work (including units) for any math problem.

1. **Learning Target 2.1** – Understand how and why atoms form chemical bonds.
   1. Define the term chemical bond.
      1. Which subatomic particle is responsible for all chemical bonding?
      2. Describe two ways of forming a chemical bond.
   2. What is a valence electron?
   3. What is the Octet Rule?
      1. Why do atoms form chemical bonds? (hint: put your answer in terms of energy)
2. **Learning Target 2.2** – Identify and describe Covalent Bonding, Ionic Bonding, and Metallic Bonding
   1. Which type of bond occurs between a metal and a non-metal?
      1. What are the electrons doing in this type of bond?
      2. Explain the terms: Polar-Covalent Bond & Non-Polar-Covalent Bond
   2. Which type of bond occurs between two, or more, non-metals?
      1. What are the electrons doing in this type of bond?
   3. Which type of bond occurs between two, or more, metals
      1. What are the electrons doing in this type of bond?
   4. Compare and contrast metallic bonds with covalent bonds. (create a Venn diagram or a table)
   5. With a periodic table, predict the type of bond will form between the following pairs of atoms.
      1. Sodium & Chlorine
      2. Iron & Titanium
      3. Sulfur & Oxygen
3. **Learning Target 2.3** – Describe the process of ionization using the terms octet rule & valence electrons
   1. What are valence electrons?
      1. How are valence electrons different from other electrons?
   2. What does the octet rule state?
      1. Why do atoms “need” a valence shell full of electrons?
   3. How does an atom become a positive ion?
      1. What is a synonym for a positive ion?
   4. How does an atom become a negative ion?
      1. What is a synonym for a negative ion?
4. **Learning Target 2.4** – Write and name chemical formulas for ionic and covalent compounds.
   1. What are the steps for writing an ionic chemical formula? (hint: three steps)
   2. What are the steps for naming an ionic chemical formula? (hint: three steps)
      1. Write the formula for the compound formed between: Magnesium & Chlorine
      2. Name the formula for the compound above.
   3. What are the steps for writing a covalent chemical formula?
   4. What are the steps for naming a covalent formula?
      1. Write the formula for the covalent compound: Di-hydrogen oxide.
      2. Write the name of the following formula: CO2
5. **Vocabular Review**: <https://quizlet.com/_616b66>
6. Chemical bonding practice quiz: <https://tinyurl.com/y8xd2qtj>
   1. Record your score here: