**Lesson Plan Title: Mixed Naming and Chemical Formula Practice**

**Teacher’s Name: Mr.Gomez Subject/Course: Chemistry**

**Unit: Bonding Grade Level: College Prep/Honors**

**Overview of and Motivation for Lesson:**

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| **Stage 1-Desired Results** | | |
| **Standard(s):**  HS-PS1-2. Use the periodic table model to predict and design simple reactions that result in two main classes of binary compounds, ionic and molecular. Develop an explanation based on given observational data and the electronegativity model about the relative strengths of ionic or covalent bonds. Clarification Statements: \* Simple reactions include synthesis (combination), decomposition, single displacement, double displacement, and combustion. \* Predictions of reactants and products can be represented using Lewis dot structures, chemical formulas, or physical models. \* Observational data include that binary ionic substances (i.e., substances that have ionic bonds), when pure, are crystalline salts at room temperature (common examples include NaCl, KI, Fe2O3); and substances that are liquids and gases at room temperature are usually made of molecules that have covalent bonds (common examples include CO2, N2, CH4, H2O, C8H18). | | |
| **Aim/Essential Question:**   * How are ionic and covalent compounds arranged differently at the atomic level? | | |
| **Understanding(s):**  *Students will understand that . . .*   * Ionic Compounds are composed of a metal and nonmetal or polyatomic * Covalent compounds are composed of two nonmetals * Prefixes are required for covalent compounds | | |
| **Content Objectives:**  *Students will be able to . . .*   * Name Ionic Compounds * Name Covalent Compounds * Write Chemical formulas for Ionic compounds * Write Chemical formulas for Covalent Compounds | | **Language Objectives:**  ELD Level 4 *Students will be able to . . . in English*   * Discuss with their group members and defend their answer to a chemical name   ELD Level 1 *Students will be able to . . . in English*   * Use the following sentence:   The chemical compound written is\_\_\_\_\_\_\_\_ (Ionic or covalent) |
| **Key Vocabulary**   * Chemical Formula * Ionic Compound * Covalent Compound | | |
| **Stage 2-Assessment Evidence** | | |
| **Performance Task or Key Evidence**   * Students will work together in their chosen groups to name compounds | | |
| **Key Criteria to measure Performance Task or Key Evidence**   * Students will work together to write Chemical Formula of chemical Compounds | | |
| **Stage 3- Learning Plan** | | |
| **Learning Activities:**  Do Now/Bell Ringer/Opener: Students will go to their folder and get their plicker card and answer two questions about chemical bonding  What is the Chemical Formula for Cesium Phosphate?  What is the chemical name for P2Cl4?  Learning Activity 1:  Students will get into groups of 3 and grab a whiteboard, sock and marker. The students in a group will solve problems about naming compounds based upon chemical formulas. Each student will have roughly 90 seconds to answer the problem. Roughly 14 problems will be done. The widener science web page will be used to generate problems.  Rules  Each group who gets the answer right gets one point  First group to answer correctly gets an extra point  Time limit can change if students feel pressured on problems  Learning Activity 2:  The students in a group will solve problems about writing chemical formulas based upon chemical names. Each student will have roughly 90 seconds to answer the problem. Roughly 12 problems will be done  Same rules apply as above.  1st place team gets a prize (probably dum dum lollipops)  Application  **Naming compounds and writing chemical formula helps scientists investigate which compound should be used or which one it is**  Summary/Closing  **Students will participate in a discussion about why do you think we learned this?**  **Multiple Intelligences Addressed:**   |  |  |  |  | | --- | --- | --- | --- | | Linguistic | Logical-Mathematical | Musical | Bodily-kinesthetic | | Spatial | Interpersonal | Intrapersonal | Naturalistic |   **Student Grouping**  Whole Class  Small Group  Pairs  Individual  **Instructional Delivery Methods**  Teacher Modeling/Demonstration  Lecture  Discussion  Cooperative Learning  Centers  Problem Solving  Independent Projects | | |
| **Accommodations**  None | **Modifications**  None | |
| **Homework/Extension Activities:**  Study for the quiz tomorrow | | |
| **Materials and Equipment Needed:**   * Whiteboard * Markers * Eraser * Projector | | |

**Adapted from Grant Wiggins and Jay McTighe-*Understanding by Design***