**Lesson Plan Title: Ionic Bonding naming and 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 is converting chemical formula to chemical compound useful for scientists? | | |
| **Understanding(s):**  *Students will understand that . . .*   * Cation keeps its name * Anions name gets an “ide” added to the end after2-5 letters are dropped | | |
| **Content Objectives:**  *Students will be able to . . .*   * Write an Ionic compounds name when given a Chemical Formula * Identify Cation and Anion in each ionic compound | | **Language Objectives:**  ELD Level 3 *Students will be able to . . . in English*   * With a partner, name the ionic compound from chemical formula   ELD Level 3 *Students will be able to . . . in English*   * Explain to a partner the steps that are required to name an ionic compound |
| **Key Vocabulary**   * Cation * Anion * Compound * Ionic Bond * Metal * Nonmetal | | |
| **Stage 2-Assessment Evidence** | | |
| **Performance Task or Key Evidence**   * After teacher does problems on the board, the students will be asked to rate their understanding on the material * Students will be asked to demonstrate knowledge of naming and do problems on the board and defend their answer | | |
| **Key Criteria to measure Performance Task or Key Evidence**   * Students will attempt each problem from the worksheet and get at least half of the problems right | | |
| **Stage 3- Learning Plan** | | |
| **Learning Activities:**  Do Now/Bell Ringer/Opener: Click here to enter text.  Students will take out plickers and answer three questions  What is a cation?  What is an anion?  What is Metallic Bonding?  Learning Activity 1:  Students will take out a piece of paper to take notes on naming Ionic Compounds.  The teacher will write down notes on the board that states the rules for Ionic Bonding:  The Cation keeps its name  the Anion drops the last 2 to 5 letters and the suffix “-ide” is attached to the end. Examples:  Oxide, Phosphide, Bromide, Fluoride, etc.  The teacher will demonstrate this knowledge by displaying three ionic compounds formula:  NaCl  Sodium Chloride  Ca3P2  Calcium Phosphide  Li2S  Lithium Sulfide  The students will be copying down these examples and will be writing down the chemical compound name.  College Prep: The teacher then will ask the students for a main group metal and any nonmetal. The teacher will walk the students through three more examples. These examples will be going from Chemical formula to Compound name. For each type of example, the teacher will ask the students if anyone wants to volunteer to do an example on a board.  After each set of examples, the students will be asked by the teacher, whether they are understanding this or not by using their thumb. Thumbs up is good, thumbs down are confused, in the middle is you are sort of getting it. If majority is thumbs down, one or two more examples will be done with students.  The students will be copying down the examples on the board  Honors: The teacher then will ask the students for any metal and any nonmetal. The teacher will walk the students through three more examples. These examples will be going from Chemical formula to Compound name. For each type of example, the teacher will ask the students if anyone wants to volunteer to do an example on a board.  After each set of examples, the students will be asked by the teacher, whether they are understanding this or not by using their thumb. Thumbs up is good, thumbs down are confused, in the middle is you are sort of getting it. If majority is thumbs down, one or two more examples will be done with students.  The teacher will do some practice with polyatomic ions  The students will be copying down the examples that are done on the board  Learning Activity 2:  The students will be doing a naming ionic compound worksheet which will reinforce the students’ knowledge of naming an ionic compound. Students will start on the back of the worksheet and follow the instructions of the worksheet. The students will identify the anion, cation and give the name of the compound and refer to the front or ask the teacher for help if they are confused  The teacher will walk around to the students and check in whether the students are understanding the worksheet and question the students which one in the anion and which one is the cation in the compound.  Application  **Writing compound names help students start to correlate and start converting formulas to names and vice versa**  Summary/Closing  **If today we converted from chemical formula to compound name, what do you think we will be doing tomorrow?**  **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**  Click here to enter text. | **Modifications**  Click here to enter text. | |
| **Homework/Extension Activities:**  The worksheet assigned for classwork is the homework for Wednesday | | |
| **Materials and Equipment Needed:**   * Naming Ionic Bond Worksheet * Markers | | |

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