**Lesson Plan Title: Polyatomic Ions naming and formula writing**

**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 polyatomic ions arranged in Ionic bonding? | | |
| **Understanding(s):**  *Students will understand that . . .*   * Polyatomic Ions are composed of two or more elements * Polyatomic Ions are composed of multiple charges * Polyatomic Ions keep their name when in an ionic bond | | |
| **Content Objectives:**  *Students will be able to . . .*   * Write Ionic bond name with correct polyatomic ion * Write correct chemical formula with correct polyatomic ion | | **Language Objectives:**  ELD Level 3 *Students will be able to . . . in English*   * In their own words describe to a partner what a polyatomic ion is   ELD Level 3 *Students will be able to . . . in English*   * Classify each polyatomic ion as a cation or anion in the chemical name |
| **Key Vocabulary**   * Polyatomic * Ion * Chemical Formula * Chemical Name | | |
| **Stage 2-Assessment Evidence** | | |
| **Performance Task or Key Evidence**   * Students will demonstrate knowledge of polyatomic ions by stating which polyatomic the teacher is asking for | | |
| **Key Criteria to measure Performance Task or Key Evidence**   * Students will write correct chemical formula or correct chemical name for 60% of the worksheet questions | | |
| **Stage 3- Learning Plan** | | |
| **Learning Activities:**  Do Now/Bell Ringer/Opener: Students will go to their folder and answer three plicker question  What is an Ionic Bond?  What is the Chemical Name for K3N  What is the Chemical formula for Calcium Oxide?    Learning Activity 1:  Teacher will guide the students through Ionic compound naming:  NaOH  (NH4)2S  MgCO2  Teacher will guide students through Ionic Compound Chemical Formula writing  Lithium Phosphate  Barium Sulfate  Aluminum Nitrate  Teacher will ask students whether they are understanding the problem sets by asking the students to give a thumb up, down or in between and if mostly in between then more problems will be done  Learning Activity 2:  Students will be handed a worksheet on polyatomic that has two columns. One column is writing chemical name, the other is writing the chemical formula.  Application  **Chemical formulas and chemical names help identify the compound**  Summary/Closing  **Teacher will lead a discussion about what the students learned today and ask what a polyatomic is? And touch a bit upon the essential question and lead them to the idea that compounds are arranged a certain way**  **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:**  Do worksheet for homework | | |
| **Materials and Equipment Needed:**   * Worksheet | | |

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