**Lesson Plan Title: Naming covalent compounds 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 covalent compounds arranged at the atomic level? | | |
| **Understanding(s):**  *Students will understand that . . .*   * Covalent compound names contain prefixes * Covalent compounds are made up of two nonmetals | | |
| **Content Objectives:**  *Students will be able to . . .*   * Name Covalent compounds * Write chemical formula for covalent compounds | | **Language Objectives:**  ELD Level 4 *Students will be able to . . . in English*   * Describe to a partner the steps involved in naming covalent compounds   ELD Level 2 *Students will be able to . . . in English*   * List the prefixes required for covalent bonds |
| **Key Vocabulary**   * Covalent * Chemical Formula * Chemical Name * Prefix | | |
| **Stage 2-Assessment Evidence** | | |
| **Performance Task or Key Evidence**   * Students will respond to teacher’s questions and rate their understanding | | |
| **Key Criteria to measure Performance Task or Key Evidence**   * Students will attempt all problems and at least get half of them right | | |
| **Stage 3- Learning Plan** | | |
| **Learning Activities:**  Do Now/Bell Ringer/Opener: Students on a piece of notebook paper will write down their answers to the following two questions:  What is a covalent compound?  What are some prefixes you know of related to numbers?  Teacher will then discuss these and lead them to naming covalent compounds  What are the two types of covalent compounds?  Learning Activity 1:  Teacher will first ask the students whether they know any prefixes relating to numbers. Teacher will try to connect it to geometry and shapes since those have prefixes. Teacher will display a box with prefixes  Mono – 1  Di – 2  Tri – 3  Tetra – 4  Penta-5  Hexa-6  Hepta-7  Octa-8  Nona-9  Deca-10  The students will copy these down into their notes and reference these when naming covalent compounds.  The teacher will lead the students through first writing chemical formula  Silicon Dioxide  Dihydrogen Monoxide  Phosphorus Pentabromide  Chlorine Trifluoride\*  Sulfur hexafluoride\*  The students will copy these problems into their notes and two students will do the problems with \* if most students are getting it when teacher asks through a thumb up, down or in between. If not, the teacher will lead the students through one extra example.  The teacher will then do problems converting from chemical formula to chemical names  IBr  CS2  SeBr4  P2I4 \*  N4S4\*  The students will copy these problems into their notes and two students will do the problems with \* if most students are getting it when teacher asks through a thumb up, down or in between. If not, the teacher will lead the students through one extra example.  Learning Activity 2:  Students will get started on some mixed review problems in class to start preparing the students for the quiz on Friday and review on Thursday.  Application  **Covalent compounds**  Summary/Closing  **What are the differences between covalent and Ionic compounds. (In terms of naming)**  **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:**  Problems # 6,7,10 and 11 on pg 251 | | |
| **Materials and Equipment Needed:**   * Different colored markers | | |

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