

Krug Chemistry – Deep Run Daily Planning Guide

Date of Lesson: Q2 Day 10 – Unit 5 Quiz & Ionic Bonding Project

Topic /Big Questions: (Question Stems & Question Creation Chart) <ul style="list-style-type: none"> How do chemists write chemical names and formulas? How does the ratio of ions balance a chemical formula? How does the chemical name indicate the number of ions or atoms? 	
State SOL CH1 CH 3	Unpacking the Standards (Video explanation shown at 3:18) CH.1 The student will demonstrate an understanding of scientific and engineering practices by f) obtaining, evaluating, and communicating information CH.3 The student will investigate and understand that atoms are conserved in chemical reactions. Knowledge of chemical properties of the elements can be used to describe and predict chemical interactions. Key ideas include <ul style="list-style-type: none"> a) chemical formulas are models used to represent the number of each type of atom in a substance; b) substances are named based on the number of atoms and the type of interactions between atoms; c) balanced chemical equations model rearrangement of atoms in chemical reactions; d) atoms bond based on electron interactions; e) molecular geometry is predictive of physical and chemical properties; and f) reaction types can be predicted and classified.
Visible Learning (For the three items with asterisks*, think from a student perspective. Use simple language)	
*What am I learning today? The oxidation number indicates how many valence electrons that were lost or gained. Metals form positive ions. Nonmetals form negative ions. Positive and negative ions attract in specific ratios that cancel out the overall net charge of the ionic compound. Transition elements have multiple oxidation states, which are represented by Roman numerals.	
*Why is it important? Understanding nomenclature and chemical formulas is important for lab safety, communicating with other chemists, and predicting products of chemical reactions.	
*How will I know I've learned it? I will understand that ionic bonds occur when a metal atom transfers an electron to a nonmetal atom. This creates a positive cation (metal) and a negative anion (nonmetal). I will understand that ions combine in specific whole number ratios in order to cancel out the overall net charge.	
Differentiation strategies: Unit 5 Quiz – diatomic elements and polyatomic ions Ionic Bonding Project <ul style="list-style-type: none"> Ionic Bonding Project Criteria Periodic Table of Ions Ionic Bonding Flow Chart Ion Cutouts Ionic Bonding Project Rubric 	
Accommodations and/or modifications are being met for students with IEP's/504's. Small group activities; frequent checks for understanding; materials available on Schoology	

Daily Plan/Sequence of Instruction:

Teacher will explain how to cut and color the ions based on their oxidation number. Teacher will explain the criteria for combining the ions in order to make the appropriate ionic compounds. Students will cut, color, and combine ions by gluing them on to construction paper. Students will label the formula and names for the compounds created. Students will have two class blocks to complete this activity. The project will count as a test grade. Late submissions will be marked down 10 points for each class block not turned in.

Assessments (List all [formative/summative](#) assessments used to check for understanding during this lesson. Summative assessments may occur during a different class period.):

Ionic Bonding Project – (summative)

After assessing today's lesson are you and your students comfortable moving forward with your next objective?

Yes - students wrote the correct name and formula at least 80% of the time on the worksheets

No, remediation required to proceed – students can come to One Lunch for help. Once the final due date has passed, students, who earned a failing grade can make corrections for up to a 65% passing score.

Teacher reflection: Some students get excited about coloring and cutting. Others have poor fine motor skills and don't like to cut out the ions. The focus is more about creating compounds so I allow students to work together and take turns coloring or cutting. I also save leftover ions from previous years. This is great for students, who are absent, or who have difficulty cutting. Big time saver. For students, who want to goof off and not work on the project, remind them that the project counts as a test grade and that they will lose 10 points for each day late. If a student is really off task or causing problems, it sometimes helps to call the parent/guardian and explain how this is an easy A project.

Also, I tried to use a rainbow pattern with coloring the ions so +1 is red, +2 is orange, and so on. All the transition elements are the same color, regardless of where they are on the table. This will help students because you can say, "Remember all the yellow ions need a Roman numeral." I also colored all the polyatomic ions grey. I recommend drawing a border to indicate the charge. So for example, ammonium would be grey with a red border because it has a +1 charge. Sometimes the two colors confuse the students, so as long as they color the cut out grey, I don't worry so much about the border.

This project also goes well with the visual aid boxes that I use to identify the charge on the transition element.