

# Krug Chemistry – Deep Run Daily Planning Guide

Date of Lesson: Q2 Day 4 – Classifying Elements Lab

<b>Topic /Big Questions: (<a href="#">Question Stems</a> &amp; <a href="#">Question Creation Chart</a>)</b> <ul style="list-style-type: none"> <li>• <b>How are metals different than nonmetals?</b></li> <li>• <b>What type of elements conduct electricity?</b></li> <li>• <b>Which elements react with acids?</b></li> <li>• <b>Which elements are malleable?</b></li> <li>• <b>How does investigating elements reveal periodic trends?</b></li> </ul>	
<b>State SOL</b>  CH1  CH 2	<b>Unpacking the Standards (<a href="#">Video explanation shown at 3:18</a>)</b>  CH.1 The student will demonstrate an understanding of scientific and engineering practices by f) obtaining, evaluating, and communicating information  The student will investigate and understand that elements have properties based on their atomic structure. <b>The periodic table is an organizational tool for elements based on these properties.</b> Key information pertaining to the periodic table includes a) average atomic mass, isotopes, mass number, and atomic number; b) nuclear decay; c) trends including atomic radii, electronegativity, shielding effect, and ionization energy; d) electron configurations, valence electrons, excited electrons, and ions; and e) historical and quantum models.
<b>Visible Learning (For the three items with asterisks*, think from a student perspective. Use simple language)</b>	
<b>*What am I learning today?</b> Metals have different properties than nonmetals. Chemists use appearance, conductivity, malleability, and reactivity to differentiate between metals and nonmetals.	
<b>*Why is it important?</b> Understanding the physical and chemical properties of metals and nonmetals will help chemists identify unknown substances and will aid in identifying reactants and products in chemical reactions.	
<b>*How will I know I've learned it?</b> I will understand that metals are lustrous and malleable. Metals also conduct electricity and react with acids. Nonmetals are brittle and have a dull color. Nonmetals usually do not conduct electricity nor do they react with acids. Metalloids have some of each property.	
<b><a href="#">Differentiation strategies:</a></b>  <b>Classifying Elements Lab</b>  <b>Unit 4 Test Review</b>	
<b>Accommodations and/or modifications are being met for students with IEP's/504's.</b>  Small group activities; frequent checks for understanding; materials available on Schoology	
<b>Daily Plan/Sequence of Instruction:</b>  Students will be separated into groups. Students will rotate through lab stations that test the appearance, conductivity, malleability, and reactivity of 7 unknown elements. (Elements are actually calcium, magnesium, aluminum, silicon, carbon, sulfur, and tin.) Based on the physical and chemical properties of the elements, students will predict the type of element observed. Teacher will reveal the identity of the elements at the end of the lab in order to show the periodic trends that were observed during the investigation. For example, silicon and aluminum do	

not readily react with acid, but magnesium and calcium form bubbles immediately. Calcium forms more bubbles and reacts vigorously because it is lower down on Group 2. This faster reaction is due to a larger radius and more shielding, so valence electrons further from nucleus so easier to remove (ionization energy).

Teacher will remind students that the Unit 4 Test Review on Schoology is due at the beginning of the next class before the test.

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

**Classifying Elements Lab** – (summative)

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

**Yes** - students have scored 80% or higher on Unit 4 Test Review and Classifying Elements Lab

**No**, remediation required to proceed – tutoring available during One Lunch

**Teacher reflection:** The students, especially the boys, love the malleability part of this lab. Last year the boys whacked the elements so hard with the hammer they scratched the top of the lab bench. Warn the new students not to get carried away and whack the elements too hard. Maybe put a cutting board or something to absorb the shock under the elements as they whack them. Never a dull moment! LOL