Krug Chemistry – Deep Run Daily Planning Guide

Date of Lesson: Q1 Day 18 – Electron Configurations

Topic /Big Questions: (Question Stems & Question Creation Chart)

- **How do electrons orbit the nucleus?**
- **How are electrons arranged in orbitals?**
- **How do valence electrons affect chemical reactions?**

State SOL	Unpacking the Standards (Video explanation shown at 3:18)
CH1	CH.1 The student will demonstrate an understanding of scientific and engineering practices by f) obtaining, evaluating, and communicating information
CH 2	CH2 The student will investigate and understand that elements have properties based on their atomic structure. The periodic table is an organizational tool for elements based on these properties. d) electron configurations, valence electrons, excited electrons, and ions; and

Visible Learning (For the three items with asterisks*, think from a student perspective. Use simple language)

***What am I learning today?** Electron configurations are numeric representations of the arrangement of electrons around the nucleus of an atom based on their energy level. The number of paired and unpaired electrons determine chemical properties, particularly bonding.

***Why is it important?** The arrangement of electrons determines the type of chemical bonding that will occur.

***How will I know I've learned it?** I will be able to write an electron configuration for a given atom or ion. I will understand the Aufbau Principle, Pauli Principle, and Hund's Rule.

Differentiation strategies:

Electron Configuration Power Point

Coloring Periodic Tables

Bohr Orbital Worksheet

Aufbau Worksheet

Electron Configuration Worksheet

Sheldon's New Element – Big Bang Theory Whiteboard Mistake

Interactive Electron Configuration Website - http://www.fscj.me/e_config/e-1instruct.html

Accommodations and/or modifications are being met for students with IEP's/504's.

Access to all materials on Schoology, frequent checks for understanding; working in small groups;

Daily Plan/Sequence of Instruction:

Teacher will use **Electron Configuration PowerPoint** to help understand the properties of electrons. Students will color code s, p, d, f sections of periodic table, label group names, and identify # of valence and oxidation for each group. Teacher will use guided instruction to help students complete the **Bohr Model Worksheet** and **Aufbau Worksheet.** Students will complete the **Electron Configuration Worksheet** independently with assistance as needed.

Teacher will show YouTube video "**Big Bang Theory – Sheldon finds a new element**" https://www.youtube.com/watch?v=hktk-xyCCyY. Students will be given extra credit if they can locate each of the elements on the periodic table that were shown on the Whiteboard in this video. For new elements, students must identify group name and any possible physical or chemical properties.

Students will be given access to the an interactive Electron Configuration website to practice outside of class.
Interactive Electron Configuration Website - http://www.fscj.me/e_config/e-1instruct.html

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

Bohr Model Worksheet (summative)

Aufbau Worksheet (summative)

Electron Configuration Worksheet (summative)

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

Yes - students actively participated and scored 80% or higher on their worksheets

No, remediation required to proceed – teacher will contact parents if students are off task and do not complete work

Teacher reflection: Student struggle to see the patterns in electron configurations. Be patient. Explain it's like reading a book. Follow the pattern to the end of the row and then start on the next row. It will help to allow students to color code a periodic table. Students should color code the s, p, d, f orbitals, label group names, and write the # of valence electrons and oxidation numbers at the top of each row.