Krug Chemistry – Deep Run Daily Planning Guide

Date of Lesson: Q2 Day 22 – Unit 7 Quiz and Types of Reactions Notes

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

- **What is the mass of each element in a compound?**
- **What is the total mass of a compound?**
- **What is the percent of each element in the compound?**
- **What is the law of multiple proportions?**
- **What is the difference between an empirical formula and a molecular formula?**
- **How can empirical and molecular formulas be calculated?**
- **What are common types of chemical reactions?**

State SOL	Unpacking the Standards (Video explanation shown at 3:18)
CH.3	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 f) reaction types can be predicted and classified.
CH.4	CH.4 The student will investigate and understand that molar relationships compare and predict chemical quantities. Key ideas include a) Avogadro's principle is the basis for molar relationships; and b) stoichiometry mathematically describes quantities in **chemical composition** and in chemical reactions

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

***What am I learning today?** Empirical and molecular formulas are used to show the chemical composition of a compound. Both of these are useful in determining the formula of a substance based on the mass of the elements of an unknown substance. The percent composition reflects the amount of each element within the compound. Chemical reactions exhibit mass conservation. There are 6 common types of chemical reactions

***Why is it important?** Chemists use empirical formulas and molar masses to determine the composition of unknown substances. The Law of Mass Conservation applies to chemical reactions. Identifying types of reactions allows chemists to predict the products.

***How will I know I've learned it?** I will determine the empirical and molecular formulas of a compound given masses of elements that compose it and conduct an investigation to determine the percent composition and/or the empirical formula of a substance. I will identify the types of reactions and predict the products.

Differentiation strategies:

Unit 7 Quiz

Chemical Reactions Concept Map

Ted Ed Video - The law of conservation of mass - Todd Ramsey https://www.youtube.com/watch?v=2S6e11NBwiw

Types of Reactions PowerPoint

CER Types of Reaction Investigation

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; small group testing and extended time available as needed

Daily Plan/Sequence of Instruction:

Students will that the Unit 7 Quiz, which is on paper and requires them to show all calculations for credit. After the quiz, students will complete the **Chemical Reactions Concept Map** with teacher assistance. Teacher will show TED ED video about Laws of Mass Conservation (https://www.youtube.com/watch?v=2S6e11NBwiw). Divide students into 6 groups – one for each type of reaction. (If 7 groups are easier, make the 7th group investigate incomplete combustion.) Each group will be given a different chemical equation. Each group should write their equation on their whiteboard and complete a **CER investigation**. ***Claim*** – What type of reaction is it? ***Evidence*** – What type of elements and compounds are present in the formula? ***Reasoning*** – What pattern is present in this type of reaction? Students will share their results with the class and record information in their lab notebooks. Students may use the **Types of Reaction Power Point** or the internet to aid their investigations.

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

Unit 7 Quiz – (summative)

CER Types of Reactions Activity – (formative)

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

Yes - students scored 80% or higher on the Unit 7 Quiz and participated in the CER Activity

No, remediation required to proceed – If students failed the quiz, their parent/guardian will be informed; they may do corrections for a 65% passing score; tutoring is available during One Lunch

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