Krug Chemistry – Deep Run Daily Planning Guide

Date of Lesson: Q3 Day 11 – Stoichiometry Relay Races & Test Review

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

- **What is a chemistry mole?**
- **How do chemists convert units into moles?**
- **How many (atoms, liters, or grams) are in a mole?**
- **How are mole ratios used in balanced chemical equations?**
- **How can a chemist identify the limiting reactant and excess reactant after a reaction?**
- **What is the mass of the theoretical yield?**
- **How much excess reactant is leftover?**

State SOL	Unpacking the Standards (Video explanation shown at 3:18)
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?** A mole is a unit of measurement used to indicate the ratio of reactants and products. The number of atoms (or molecules) in a mole is 6.022×10^{23}. At STP 22.4 L of gas are present in a mole. The average atomic mass on the periodic table is accepted as the number of grams in a mole of that element. Chemists use dimensional analysis to convert between units. A limiting reactant is the reactant that will run out first in a chemical reaction. Industries determine which reactant to use as the limiting reactant based on the cost of the chemical.

***Why is it important?** In order for chemical equations to be useful, there needs to be a way to measure the quantities of reactants and products. Stoichiometry involves quantitative relationships in a balanced equation which are based on mole ratios.

***How will I know I've learned it?** I will recognize the pattern in the dimensional analysis equation in order to convert between units of moles, liters, grams, atoms, and molecules. I will use dimensional analysis to determine the limiting reactant. I will use dimensional analysis to determine the amount of excess reactant. I will calculate the percent yield of the desired product.

Differentiation strategies:

Roadmap to Stoichiometry

Stoichiometry Formula Guide

Stoichiometry Relay Races

Unit 8 Test Review

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:

Students will play **Stoichiometry Relay Races** in which each member of their team works out part of the problem and hands it off to the next member. Winning teams will earn tickets toward extra credit points. Students can use the remaining time to work on their **Limiting Reactant Lab** or the **Unit 8 Test Review**. Teacher will offer assistance as needed.

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

Stoichiometry Relay Races – (formative)

Unit 8 Test Review – (summative)

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 8 Test Review

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

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