INQUIRY UNIT Curriculum Plan

COURSE: Chemistry **COURSE CODE:**

COURSE OR UNIT INTRODUCTION:

Stoichiometry

COURSE OR UNIT ESSENTIAL QUESTION/SUBQUESTIONS:

How much solid copper can you get from this blue solution?

- How can a balanced chemical equation help determine the relationship between starting amounts and ending amounts?
- What is the relationship between how much you start with and how much you produce?
- Are reactions perfect?

FRONTLOADING ACTIVITY/ACTIVITIES:

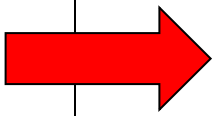
Build lego models and then use the model to write an "equation". Use the equation to perform Stoichiometry calculations.

CULMINATING ACTIVITIES (COMPOSITIONS/COLLABORATIVE MULTIMEDIA/SERVICE LEARNING AND SOCIAL ACTION: (this was cut out of the assessment due to time constraints.

Students will use stoichiometry to design a method of making and IV bag that contains a specific amount of potassium chloride.

COURSE DESIGN			
Unit Title ***& Unit Essential Questions***	***Overall Expectations*** *(Your grade is derived from your demonstration of your*	***Student-Friendly Translation*** *of Overall Expectations*	***Threshold Knowledge/Enduring Understandings*** *(What you will continue to*

and Subqestions	*understanding of these expectations, in each achievement category.)*		*use and develop over the next several years and lifetime)*
Stoichiometry	1. Mathematically relate the mass of substance to amount of amu., number of atoms or molecules, moles, grams, and liters of a gas.		
	2. Perform stoichiometric calculations from balanced equations in order to find number of atoms or molecules, moles, grams, liters of a gas, and liters of solution.	Perform calculations to determine the amounts of reactants needed and the amounts of products made.	
	3. Perform stoichiometric calculations using limiting reactant data.		
	4. Distinguish between theoretical yield, actual yield and use to determine percent yield.		
	• The fact that atoms are conserved, together with knowledge of the chemical properties of the elements involved, can be used to describe and predict chemical reactions. (HS-PS1-2),(HS-PS1-7)		

Course Culminating Activity (30%): Assessment OF Learning. *Through what engaging and authentic performance task(s) will students demonstrate the desired understandings and mastery of threshold knowledge?* Conceptual knowledge: Perform stoichiometric calculations Procedural Knowledge: Produce the desired amount of Potassium in their IV bag. Final product that will demonstrate this knowledge: Students will MAKE the IV bag solution. They will use solubility rules to check/test the identity of their solid and they will use a flame test to confirm the potassium in the IV bag.	 In one sentence: Perform stoichiometric calculations to produce the desired amount of Potassium in their IV bag.

DETAILED UNIT PLAN	
Tied to standards/sequenced in this order	
BIG IDEAS/UNDERSTANDINGS: • The mole is the unit that allows conversions between compounds.	**ESSENTIAL QUESTION AND SUBQUESTIONS:** **How is a chemical reaction similar to a supply list for a project?** • How can a balanced chemical equation help determine the relationship between starting amounts and ending amounts? • What is the relationship between how much you start with and how much you produce? • Are reactions perfect?
	FRONTLOADING STRATEGY/IES FOR UNIT: Using the legos in a bucket, students will build **two identical** structures of their choice. They will use their structures to write a "chemical equation" and use the chemical equation to determine the number of Legos need for three and five of the same structure. Student will describe alternative methods for solving the same problem.

MISCONCEPTIONS TO BE ADDRESSED:	SKILLS NECESSARY for SUCCESS ON FINAL PROJECT:
• Mole ratio can be skipped during a stoichiometric calculation.	• **Predicting Products of chemical equations.** • **Balancing chemical equations** • **Performing stoichiometric calculations**

CHECKLISTS OF CONSIDERATIONS FOR UDL

Learning Styles	Multiple Intelligence	Inclusive Technology	Bloom's Taxonomy	Literacy Strategies
___ **Auditory**	___ **Visual/Spatial**	___ **WordQ/Speak Q**	___ **Knowledge**	___ **Setting a Purpose for reading (e.g. anticipation guide, heading questions)**
___ **Visual**	___ **Bodily Kinesthetic** ___ **Musical** ___ **Interpersonal**	___ **Kurzweil**	___ **Comprehension** ___ **Application** ___ **Analysis**	___ **Monitoring Comprehension (e.g.coding text, double-entry diary)**
___ **Kinesthetic**	___ **Intrapersonal** ___ **Verbal Linguistic** ___ **Logical Mathematical** ___ **Naturalistic**	___ **Inspiration** ___ **Other Programs**	___ **Evaluation** ___ **Synthesis**	___ **After-reading processing (e.g. Question-answer relationship, Retell, SQ4R)** ___ **Word Walls**

ASSESSMENTS – Stoichiometry Quiz