

FRANKLIN-SIMPSON HIGH SCHOOL

Course Name: Pre – AP Chemistry Unit Name: Chemical Equations

Days: 11

Quality Core Objectives:

Unit 5 Chemical Equations	
I.A.1. Scientific Inquiry	c. Collect, organize, and analyze data accurately and use techniques and equipment appropriately
	d. Interpret results and draw conclusions, revising hypotheses as necessary and/or formulating additional questions or explanations
	e. Write and speak effectively to present and explain scientific results, using appropriate terminology and graphics
	f. Safely use laboratory equipment and techniques when conducting scientific investigations
	g. Routinely make predictions and estimations
I.A.3. Science in Practice	e. Use a variety of appropriate sources (e.g., Internet, scientific journals) to retrieve relevant information; cite references properly
III.A.3. Chemical Equations and Stoichiometry	a. Explain how conservation laws form the basis for balancing chemical reactions and know what quantities are conserved in physical, chemical, and nuclear changes
	b. Write and balance chemical equations, given the names of reactants and products
	c. Describe what is represented, on a molecular and molar level, by chemical equations
	d. Use the appropriate symbols for state (i.e., solid, liquid, gaseous, aqueous) and reaction direction when writing chemical equations
	e. Classify chemical reactions as being synthesis, decomposition, single replacement, or double replacement reactions
	f. Predict the products of synthesis, combustion, and decomposition reactions and write balanced equations for these reactions

Purpose of the Unit: Students will be able to use the law of conservation of mass to balance chemical equations and describe what is happening during the reaction on a molecular and molar level. Students will be able to determine the states of the products and reactants of chemical reactions as solid, liquid, gas, or aqueous and describe how the states effect the reaction. Students will also be able to classify chemical reactions based on their type and predict the reaction products based on this information.

Prerequisites: Students should be able to:

- Write the formulas of chemicals from the written name of the compound, and vice-versa.
- Understand the Law of Conservation of Matter/ Mass/ and Energy.
- Determine the number of atoms of elements in a compound.
- Determine if elements are metals, non-metals, or metalloids.

Daily Lesson Guide

Day	Lesson Content and Objectives	Focus Questions	Critical Thinking (High Yield / Literacy /LTF/etc.)	Engagement	Assessment and/or Accommodations
1	* Law of Conservation of Matter/ Mass/ Energy * Writing chemical equations III.A.3.a, b	* How can symbols be used to represent a chemical reaction? * How does the law of cons. apply to chemical reactions?	* Summarizing and Notetaking * Non-linguistic representation * I Do-We Do-You-Do	* ACT Bell ringer * Pre-test * Modeled notes * Practice writing chemical equations together (formative)	* Evaluate pre-test * Evaluate practice problems Enrichment: Less guidance in note taking, more independence in practice, discuss prior knowledge

2	<ul style="list-style-type: none"> * Writing chemical equations with states * Equations on a molar and molecular level III.A.3.b, c, d	<ul style="list-style-type: none"> * How are the states of matter constituents of a chemical reaction represented? * What all can a chemical reactions represent? 	<ul style="list-style-type: none"> * Summarizing and Notetaking * Non-linguistic representation * Evaluation * I Do-We Do-You-Do 	<ul style="list-style-type: none"> * ACT Bell ringer * Modeled notes * More practice writing chemical equations (formative) 	<ul style="list-style-type: none"> * Evaluate practice problems Enrichment: Less guidance in note taking, more independence in practice, more challenging examples in formative
3-5	<ul style="list-style-type: none"> * Balancing chemical equations III.A.3.b	<ul style="list-style-type: none"> * How can you prove that mass is conserved in a chemical reaction? 	<ul style="list-style-type: none"> * Summarizing and Notetaking * Non-linguistic representation * Analysis/ Application * I Do-We Do-You-Do 	<ul style="list-style-type: none"> * ACT Bell ringer * Modeled notes * Practice balancing equations together (formative) 	<ul style="list-style-type: none"> * Evaluate practice problems Enrichment: Introduction of net-ionic equations, less guidance in note taking, more independence in practice, more challenging examples in formative
6	<ul style="list-style-type: none"> * Classification of chemical reactions III.A.3.e	<ul style="list-style-type: none"> * How can I classify chemical reactions? 	<ul style="list-style-type: none"> * Summarizing and Notetaking * Identifying similarities and differences * Evaluation * I Do-We Do-You-Do 	<ul style="list-style-type: none"> * ACT Bell ringer * Modeled notes * Article about the Haber process * Practice classifying reactions together (formative) 	<ul style="list-style-type: none"> * Evaluate practice problems and understanding of article Enrichment: Less guidance in note taking, more independence in practice, more challenging examples in formative
7-8	<ul style="list-style-type: none"> * Predicting the products of chemical reactions I.A.1.g III.A.3.e, f	<ul style="list-style-type: none"> * How can I apply what I know about the types of chemical reactions to predict products, given reactants? 	<ul style="list-style-type: none"> * Summarizing and Notetaking * Application * I Do-We Do-You-Do 	<ul style="list-style-type: none"> * ACT Bell ringer * Modeled notes * Practice predicting products of reactions together (formative) 	<ul style="list-style-type: none"> * Evaluate practice problems Enrichment: Less guidance in note taking, more independence in practice, more challenging examples in formative

9	<p>* Laboratory: Predicting/ Confirming Products of a Chemical Reaction I.A.1.c, d, e, f, g III.A.3.a, b, c, d, e, f</p>	<p>* How can I use experimentation to confirm my previous knowledge of chemical reactions?</p>	<p>*Generating and testing hypotheses Non-linguistic representation * Learning with others * Novelty and Variety</p>	<p>* ACT Bell ringer * Conduct lab according to procedures provided (summative)</p>	<p>* Evaluate lab report Enrichment: Student development of lab procedures with less guidance</p>
10	<p>* Review I.A.1.c, d, e, f, g I.A.3.e III.A.3.a, b, c, d, e, f</p>	<p>* How can I be prepared for the unit exam?</p>	<p>* Use clickers to test students' knowledge and clarify and misconceptions before the exam with immediate feedback.</p>	<p>* ACT Bell Ringer * Use clickers to review with exam like questions (summative)</p>	<p>* Students participate in review Enrichment: Less time to solve problems and limited use of aides</p>
11	<p>* Exam I.A.1.c, d, e, f, g I.A.3.e III.A.3.a, b, c, d, e, f</p>	<p>* Can I demonstrate my knowledge on the exam?</p>	<p>* Evaluation * Analysis * Application * Synthesis</p>	<p>* ACT bell ringer * Students take exam (summative)</p>	<p>* Evaluate exam Enrichment: No use of supports with exemption of periodic table, periodic table only has element symbols, not names</p>