

FRANKLIN-SIMPSON HIGH SCHOOL

Course Name: Pre – AP Chemistry **Unit Name:** Qualitative Aspects of Solutions

Days: 5

Quality Core Objectives:

Unit 13 Qualitative Aspects of Solutions	
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.2. Mathematics and Measurement in Science	b. Use appropriate SI units for length, mass, time, temperature, quantity of matter, area, volume, and density; describe the relationships among SI unit prefixes (e.g., centi-, milli-, kilo-); recognize commonly used non-SI units
	c. Use the correct number of significant figures in reporting measurements and the results of calculations
	d. Use appropriate statistical methods to represent the results of investigations
	f. Solve for unknown quantities by manipulating variables
	g. Use graphical, mathematical, and/or statistical models to express patterns and relationships inferred from sets of scientific data
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	h. Predict the products of double replacement reactions, using solubility charts to identify precipitates, and write balanced equations for these reactions
	m. Write ionic equations, identifying spectator ions and the net ionic equation
V.A.1. Types of Solutions, Concentration, and Solubility	a. Define solution, solute, and solvent
	b. Compare properties of suspensions, colloids, and true solutions
	c. Define the terms <i>saturated</i> , <i>unsaturated</i> , <i>supersaturated</i> , <i>dilute</i> , and <i>concentrated</i> as they pertain to solutions

d. Give examples of solid, liquid, or gas medium solutions
i. Describe the relationship between temperature or pressure and the solubility of gases in liquids
j. Describe the relationship between solvent character and solute character and explain miscibility
k. Apply the general rules of solubility to aqueous salt solutions
l. Describe the factors affecting the solubility of a solute in a given solvent and its rate of solution

Purpose of the Unit: The purpose of this unit is to understand what makes a solution, the different types of solutions, the factors that affect solubility, and what types of salts are insoluble.

Prerequisites: Students should be able to:

- Identify what the parts of a solution are
- Give examples of various types of solutions

Daily Lesson Guide

Day	Lesson Content and Objectives	Focus Questions	Critical Thinking (High Yield / Literacy /LTF/etc.)	Engagement	Assessment and/or Accommodations
1	<ul style="list-style-type: none"> * Solutions * Types of solutions * Factors affecting solubility V.A.1.a, b, c, d, i, j, l	<ul style="list-style-type: none"> * What are the differences and similarities of the different types of solutions? * What factors determine solubility? 	<ul style="list-style-type: none"> * Summarizing and note taking * Identifying similarities and differences * Advanced organizers * Applications/ Analysis 	<ul style="list-style-type: none"> * Pre test * ACT bell ringer * Modeled notes * KWL chart (formative) 	<ul style="list-style-type: none"> * Evaluate pre test * Evaluate KWL chart Enrichment: Less guidance in note taking, more independence in practice, more challenging examples

2	<p>* Determining the products of double replacement reactions and their state of matter III.A.3.h, m V.A.1.k</p>	<p>* What determines the types of products formed in a chemical reaction?</p>	<p>* Summarizing and note taking * Advanced organizers * Analysis/ Application * I Do – We Do – You Do</p>	<p>* ACT bell ringer * Modeled notes and sample problems (formative) * Article about water treatment facilities</p>	<p>* Evaluate sample problems and comprehension of article Enrichment: Less guidance in note taking, more independence in practice, more challenging examples</p>
3	<p>* Laboratory: Making Rock Candy and Rock Salt I.A.1.c, d, e, f, g I.A.2.b, c, d, f, g I.A.3.e III.A.3.h, m V.A.1.a, b, c, d, i, j,k,l</p>	<p>* How can I use what I know to?</p>	<p>* Synthesis * Application/ Analysis * Identifying similarities and differences * Learning with others * Authenticity * Novelty and Variety * Generating and testing hypotheses</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>
4	<p>* Review I.A.1.c, d, e, f, g I.A.2.b, c, d, f, g I.A.3.e III.A.3.h, m V.A.1.a, b, c, d, i, j,k,l</p>	<p>* What can I do to be better prepared for the 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>
5	<p>* Exam I.A.1.c, d, e, f, g I.A.2.b, c, d, f, g I.A.3.e III.A.3.h, m V.A.1.a, b, c, d, i, j,k,l</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>