

ACID BASE LESSON PLAN

Teacher:		Subject: Chemistry-Acids and Bases	
Grade:	Period:	Date/ Lesson #:	
Core Standard:	<p>NC Essential Standard (ES): Chm 3.2 Understand solutions and the solution process.</p> <p>NC Clarifying Objectives (CO): Chm 3.2.1 Classify substances using the hydronium and hydroxide concentrations. Chm 3.2.2 Summarize the properties of acids and bases.</p> <p>Vertical Alignment (VA): PSc.2.2.3 Predict chemical formulas and names for simple compounds based on knowledge of bond formation and naming conventions. PSc.2.2.6 Summarize the characteristics and interactions of acids and bases. Chem 3.2.4 Summarize the properties of solutions. Chem 3.2.6 Explain the solution process.</p> <p>Knowledge Skills (KS):</p> <ul style="list-style-type: none"> • Distinguish between acids and bases based on formula and chemical properties. • Differentiate between concentration (molarity) and strength (degree of dissociation). No calculation involved. • Use pH scale to identify acids and bases. • Interpret pH scale in terms of the exponential nature of pH values in terms of concentrations. • Relate the color of indicator to pH using pH ranges provided in a table. • Compute pH, pOH, [H⁺], and [OH⁻]. <ul style="list-style-type: none"> • - Distinguish properties of acids and bases related to taste, touch, reaction with metals, electrical conductivity, and identification with indicators such as litmus paper and phenolphthalein. 		
By the end of class students will be able to:	<ol style="list-style-type: none"> 1. Identify properties unique to acids. 2. Identify properties unique to bases. 3. Use the pH scale to identify acids and bases. 4. Identify the color litmus paper will turn in acidic and basic solutions. 5. Classify substances using hydronium and hydroxide concentrations. 		
Literacy Focus:	<p>Reading ACT questions-Conflicting Scientists Questions CCSS.ELA-Literacy.RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.</p> <p>Have students design simple procedure and data table to use to test substances to see if they are acidic, basic, or neutral.</p> <p>Key Vocabulary: acidic solution, alkaline solution, basic solution, hydronium ion, Lewis acid, Lewis base, neutral solution, pH</p>		
21st Century Skills:	<p>Critical Thinking and Problem Solving</p> <p>Effectively analyze and evaluate evidence, arguments, claims and beliefs</p> <p>Analyze and evaluate major alternative points of view</p> <p>Synthesize and make connections between information and arguments</p> <p>Interpret information and draw conclusions based on the best analysis</p> <p>Reflect critically on learning experiences and processes</p>		
Define Level of Questioning:	<p>Level 1 (Recall): Define, list</p> <p>Level 2(Skill/Concept): Categorize, graph, distinguish, make observations</p> <p>Level 3 (Strategic Thinking): Develop a logical argument, Draw conclusion, Compare</p> <p>Level4 (Extended Thinking): Apply Concepts, Analyze</p>		
EQ Remember: Level 1 Recall and Reproduction	<p>Define: How can you define the terms acid and base?</p> <p>List properties of acids and bases.</p>		
EQ Understand:	<p>Distinguish: How do the properties of acids and bases compare?</p>		

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Level 2 Skills and Concepts	
EQ Apply: Level 2 Skills and Concepts	
EQ Analyze: Level 3 Strategic Thinking	Draw conclusion: How does changing the concentration of hydronium or hydroxide change the pH of a solution?
EQ Evaluate: Level 4 Extended Thinking	Analyze: Given a set of solutions with a certain amount of hydronium and hydroxide, rank them in order from most acidic to most basic.
EQ Create Level 4 Extended Thinking	
Warm-Up:	Review definitions and properties of solutions
1. Direct Instruction:	Tap into student prior knowledge about acids and bases:KWL
2. Guided Practice:	Alice Acid Base Lesson
3.Independent Practice:	Teacher chosen assignment
Cooperative Learning	Table Partners 3-2-1 Huddle 3 Things you understand about the topic (crystal) 2 Things you found most beneficial from the lesson (Oh Yeah, I'm glad we did that!) 1 Thing that you still don't understand (mud)
Large Group Sharing	Parking Lot-Post one crystal from the group, one oh yeah! from the group, and all the muds from the group.
Differentiation:	LEP/IEP/504 Alice will provide structured guidance to help students gain a basic understanding of the topic while having a copy of teacher notes provided through the lesson.
Homework:	
Evaluation: (Type/When)	Formative: 3-2-1 Huddle, Parking Lot, Cold Calling, whiteboarding Summative: Unit Quizzes, Unit Test, Lab
Handouts:	
Web Resources	Edmodo, Khan Academy, Science Geek, Taters, Chem Team

