

### The scenario

<b>Subject</b>	<b>Chemistry reactions/Acid-base reaction</b>
<b>Length</b>	4:48
<b>Main objectives</b>	To show how may occur an acid-base reaction that produces CO <sub>2</sub>
<b>Detailed objectives</b>	
<b>Structure and description of experiments:</b>	
<b>1. Introduction</b>	Description: The motivation for the experiment will be the investigation of the acid-base reaction and how can we see the production of CO <sub>2</sub> with a balloon
<b>2. Main subject</b>	Description: What happens when NaHCO <sub>3</sub> and vinegar react? How can we observe the formation of one of these products?
<b>Part 1</b>	
<b>(0:40), Experiment 1 (0:41)</b>	<p><b>Tools:</b> Balloon, NaHCO<sub>3</sub>, vinegar, test tube</p> <p><b>Description:</b> Pour vinegar into a test tube, then pour some NaHCO<sub>3</sub> into the balloon and place it in the mouth of the test tube. Subsequently, shake the test tube and wait for the reaction to start. Vinegar and NaHCO<sub>3</sub> react to carbon dioxide, water, and sodium acetate. The solid baking soda was placed in liquid vinegar producing carbon dioxide gas, which is evident because the balloon began to inflate because it was filled with carbon dioxide (which is a gas).</p> <p><b>Questions:</b> Why do NaHCO<sub>3</sub> and vinegar react? - Because one is a base while the other is an acid, this reaction calls an acid-base or neutralization reaction</p> <p><b>Conclusions:</b> When the NaHCO<sub>3</sub> reacts with vinegar, a neutralization reaction takes place, and an aqueous salt of sodium bicarbonate is formed along with the evolution of carbon dioxide gas.</p>
<b>3. Summary, evaluation and notes</b>	<p><b>Application:</b> Acid-base reaction is used in wastewater treatment to reduce the damage created by effluents.</p> <p>Moreover, is used in the manufacturing of antacid tablets.</p> <p><b>Level:</b> primary school (ISCED 2 / 6th, 8th grade)</p>