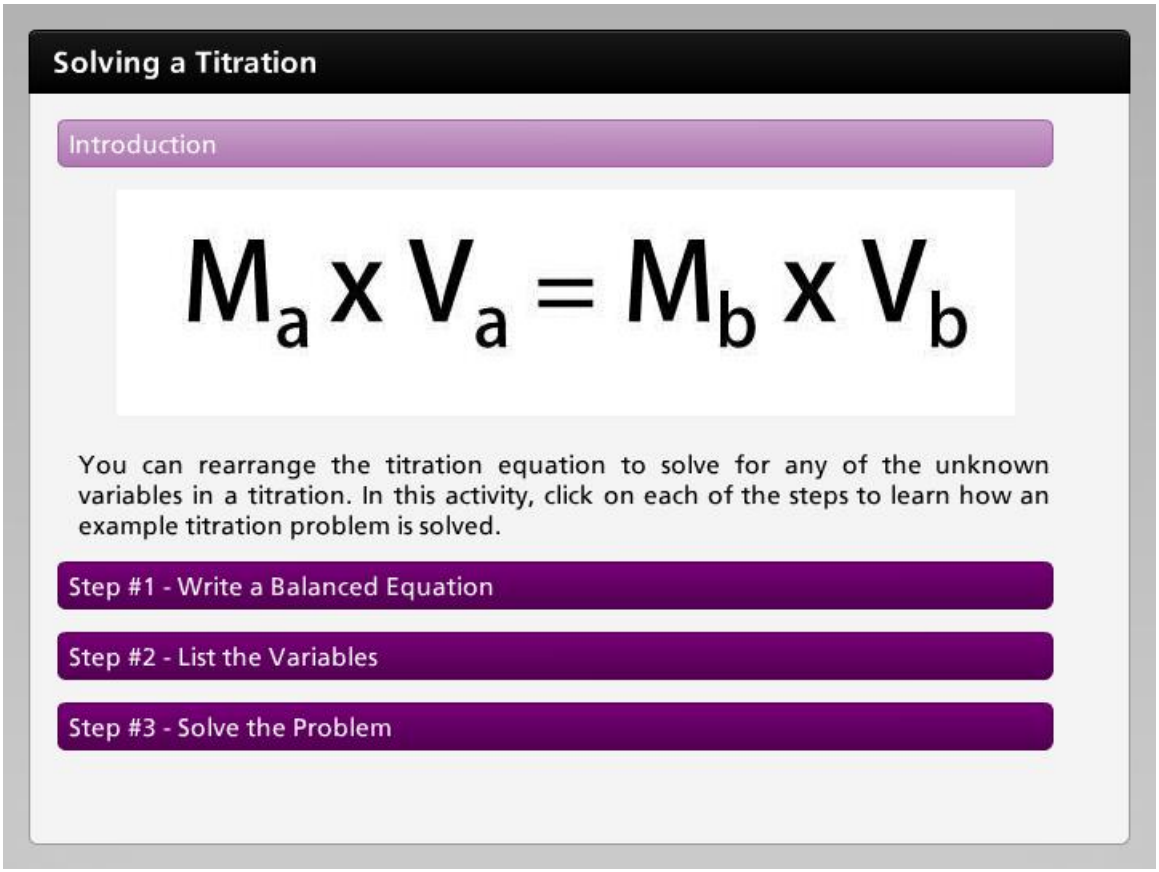
Module 11: Acid/Bases, Neutralization, and Redox Reactions
Topic 4 Content: Solving a Titration Notes

Introduction



You can rearrange the titration equation to solve for any of the unknown variables in a titration. In this activity, click on each of the steps to learn how an example titration problem is solved.

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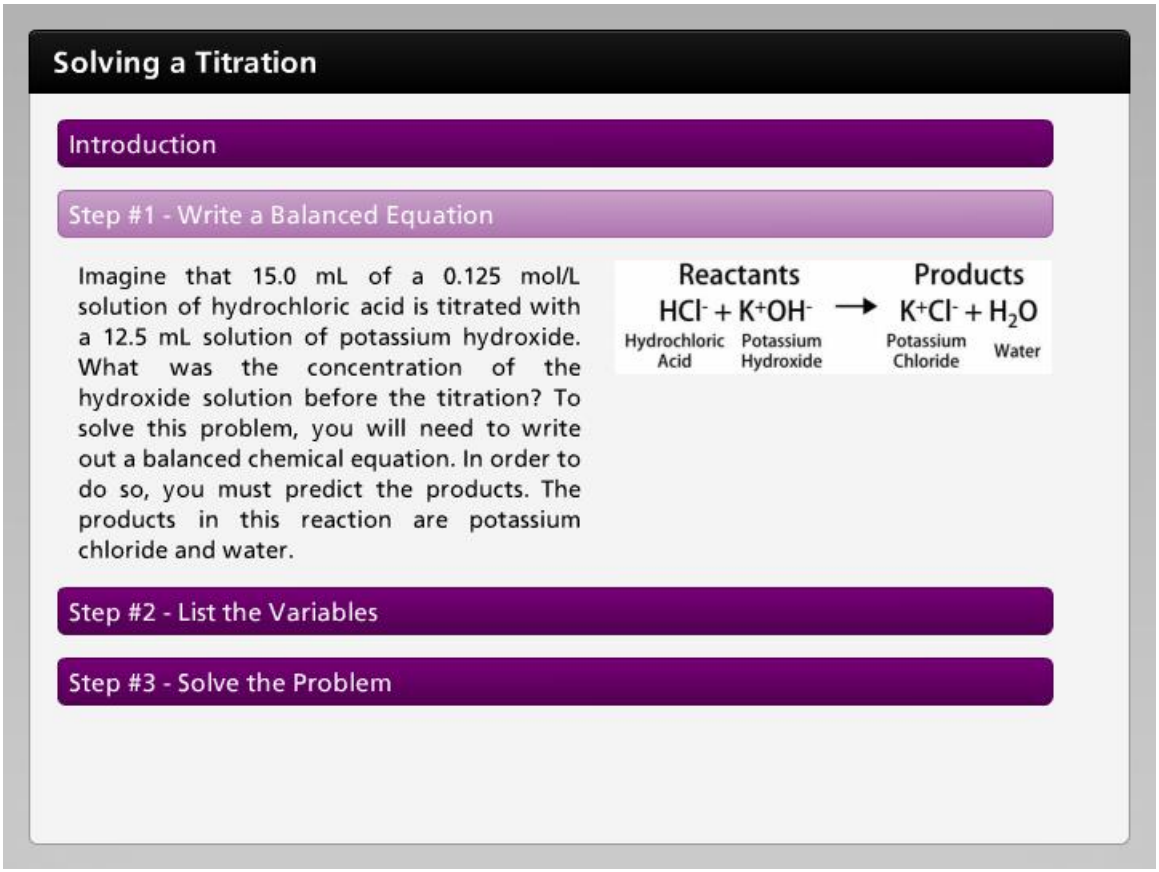
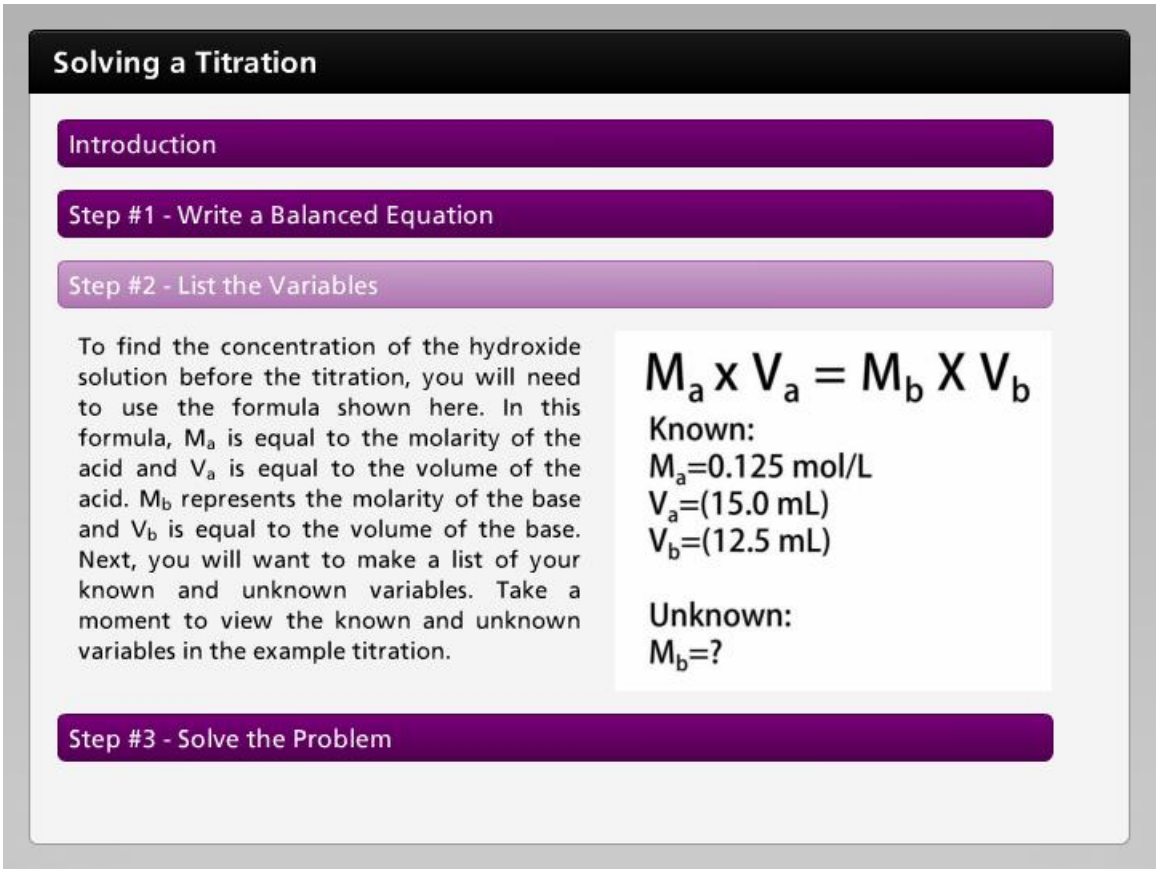
Step #1 - Write a Balanced Equation



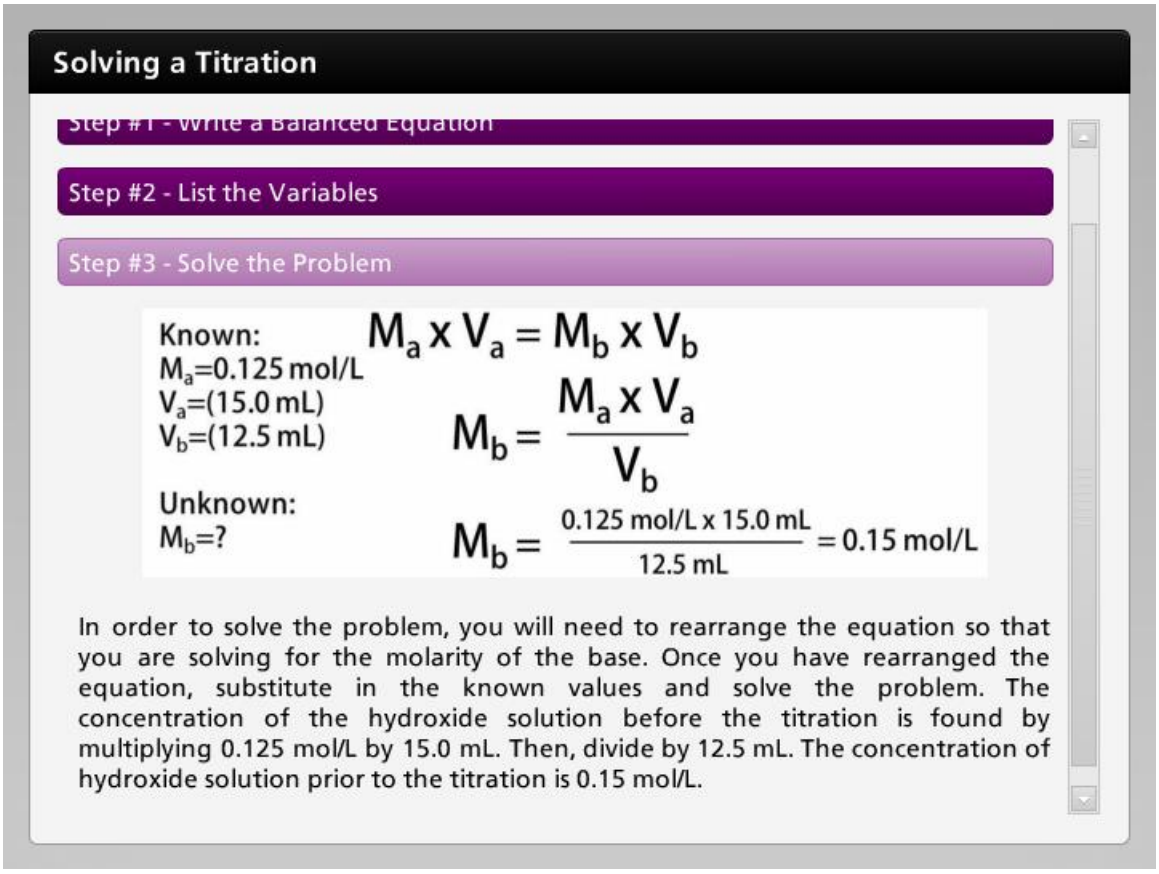
Imagine that 15.0 mL of a 0.125 mol/L solution of hydrochloric acid is titrated with a 12.5 mL solution of potassium hydroxide. What was the concentration of the hydroxide solution before the titration? To solve this problem, you will need to write out a balanced chemical equation. In order to do so, you must predict the products. The products in this reaction are potassium chloride and water.

Step #2 - List the Variables



To find the concentration of the hydroxide solution before the titration, you will need to use the formula shown here. In this formula, M_a is equal to the molarity of the acid and V_a is equal to the volume of the acid. M_b represents the molarity of the base and V_b is equal to the volume of the base. Next, you will want to make a list of your known and unknown variables. Take a moment to view the known and unknown variables in the example titration.

Step #3 - Solve the Problem



In order to solve the problem, you will need to rearrange the equation so that you are solving for the molarity of the base. Once you have rearranged the equation, substitute in the known values and solve the problem. The concentration of the hydroxide solution before the titration is found by multiplying 0.125 mol/L by 15.0 mL. Then, divide by 12.5 mL. The concentration of hydroxide solution prior to the titration is 0.15 mol/L.