

## Activity 5:Determining Percentage Yield of a Double Displacement Reaction

- The following activity gives you an opportunity to demonstrate your understanding of solutions and their reactions.
- Make sure you organize your work well and that your final product is of a high quality and a reflection of your abilities.
- You will have one class period to complete the experiment. The final report will be due two classes after this.

## Preparing Solutions from Solid Solutes:

1. Show the calculations required to prepare the following solutions:
  - a) 500 mL of a 0.70 mol/L solution of sodium carbonate,  $\text{Na}_2\text{CO}_3$ .
  - b) 250 mL of a 0.50 mol/L solution of calcium chloride,  $\text{CaCl}_2$ .

Note: Both solutes above are solids at room conditions.

## Precipitation Reactions and Theoretical Yield:

2. Determine the theoretical mass of the precipitate if 10 mL of a 0.70 mol/L solution of sodium carbonate ( $\text{Na}_2\text{CO}_3$ ) is mixed with 10 mL of a 0.50 mol/L solution of calcium chloride ( $\text{CaCl}_2$ ). Show all your work.

## Actual Yield and Percentage Yield:

3. Conduct an experiment to determine the actual mass of precipitate produced. Prepare a formal lab report including a step by step procedure and an organized observation table for your data.

4. Calculate the percentage yield for your reaction and include this work in your lab report. Comment on why your percentage yield might have ended up at this value.