NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

INTRODUCTION

*Ocean chemistry.* The flow diagram below shows some of the chemistry that happens in the ocean when carbon dioxide dissolves in it. In this lab, you’ll be doing some of these reactions!

Air

Oceans

Sea floor

**Step 1 – pH of tap water**

Measure out about 100 mL of tap water into an Erlenmeyer flask, and add a little indicator solution. Is the solution acidic or basic? (If it turns yellow or red, it’s acidic. If it turns green or blue, it’s basic.)

**Step 2 – Effect of CO2**

Bubble some CO2 through the water in your flask. Is the solution acidic or basic now?

Analysis … In your flow diagram, the initial result of bubbling CO2 through water corresponds to making H2CO3. But then, something happens to the H2CO3. Can you tell what? Big hint: more acidic means more H+. Where did it come from? What else got produced when more H+ was made?

**Step 3 – Effect of carbonate ion () on pH**

Add a little sodium carbonate to your flask. Is the solution acidic or basic now?

Analysis … Indicate on your flow diagram any reactions that appear to have occurred.

**Step 4 – Properties of calcium carbonate ()**

Empty out your flask, and (just like Step 1) add water and some indicator. Now add a little calcium carbonate to your flask. Is the solution acidic or basic? Indicate on your flow diagram any reactions that seem to have occurred.

**Step 5 – A super-acidified ocean**

Add some concentrated hydrochloric acid to your flask. Is the solution acidic or basic? What’s happening to the calcium carbonate?