

Title: The effects of the composition of water on the absorption Co2.

Topic: Ocean Acidification is adding CO2 to seawater and that will make the pH value lower which means it will be more acidic.

Experimental Question: We are trying to figure out what will happen if we blow CO2 into seawater with dye in it and see if it changes color.

Pre-Lab Questions Bubble Protocol:

1) *What gas are you blowing into the water?*

We are blowing CO2 into the water.

2) *What happens to the gas when you blow into the water?*

The CO2 gets absorbed by the water.

3) *How are you measuring change in the water during this lab?*

We are measuring the color change.

4) *What Does Measuring the pH of the water tell us?*

The acidity level.

5) *After studying the reactions above, how do you think carbonic acid will affect the pH of salt water.*

It will make it more acidic. $\text{CO}_2 + \text{H}_2\text{O} = \text{H}_2(\text{CO}_3)$ (carbonic acid)

Hypothesis Bubble Protocol: If i blow into the seawater, then the color of the water will change.

Hypothesis Shells Protocol: If i put the shell in the vinegar, then it will dissolve faster than the seawater since its more acidic.

Protocol: The independent variable for the bubble protocol is the CO2 and the dependent variable is the pH level. The independent variable for the shells experiment is the vinegar and the dependent variable is the seawater.

Data Table:

Control	0 seconds	30 seconds	1 minute	1min 30 sec	2 minutes
pH	7.5	7.0	6.5	6.5	6.0
color	turquoise	light green	yellow green	yellow green	yellow
Experiment	0 seconds	30 seconds	1 minute	1 min 30 sec	2 minutes
pH	7.5	7.5	6.5	6.0	6.0
color	turquoise	light turquoise	yellow green	yellow	yellow

Shells Lab	Observations	Initial Mass(g)	Final Mass(g)	Difference(g)	Acidity Level
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Control (seawater)	clean white inside	1.9	3.8	1.9	6
Experiment (vinegar)	clean, bubbling	3.3	3.4	.1	2
High	falling breaking apart	2.8595	3.7	0.9	
Low	falling apart in layers	3.1703	2.8	0.3	

Data Analysis:

1) *As you blew through the straw, what were you adding to the water and how did that change the pH.*

We blew CO₂ and it made the sea water more acidic.

2) *What did the universal indicator tell us about the water?*

It told us that it was getting more acidic.

3) *What does this tell us about the effects of carbonic acid in the ocean?*

It tells us that the ocean is getting more acidic.

4) *Based on the results of your experimental protocol, which factor affects the pH of the water most, temperature or salt?*

Temperature affects more the pH value because since we closed the bottle with plastic heat stayed there and changed the color.

Conclusion:

My hypothesis was correct the color did change when we blew CO₂ in the bottle. The carbon dioxide had nowhere to go since we covered the bottle so the water absorbed it and made it more acidic. Also the vinegar did dissolve the shell faster since it was more acidic. I learned that if CO₂ can't go anywhere and the ocean absorbs it and makes it more acidic which was shown by the bubbles experiment and with the water more acidic the shells that live there dissolve very quickly which was shown by the shells experiment.