

Dissolving Shells Classroom Experiment

Research Question: How does the acidity (pH) of a solution (water or vinegar) impact shells weight over time.

What is the manipulated variable (what we are changing)?

What is the responding variable (what we measure)?

What is the controlled variable (what stays the same)?

Hypothesis: what do you think will happen to the shells?

Materials:

- 2 oyster shells
- 2 cups with lids
- distilled water
- vinegar
- scale (to 1 gram)
- tweezers or tongs
- indelible sharpie

Procedure

1. Label 1 jar DH2O and the other vinegar. (Also label the jars with your name.)
2. Fill each cup to cover the shell.
3. Measure the pH of the solution in each cup and record.
4. Label one shell #1, and the other #2. Be sure to label them well and go over it twice.
5. Weigh each shell using the triple balance beam or another scale. Be sure to zero the scale before weighing. Record the weight of the shells.
6. Place #1 in the jar labeled DH2O, this is your control.
7. Place #2 in the jar labeled vinegar, this is your manipulated variable.
8. Draw a picture of each jar and its contents.
9. In a week, observe and compare the contents of each jar. Draw a picture of each jar and its contents.
10. In two weeks, weigh the shells again. Calculate and record the difference in weights from day 1 in your data table, #1.
11. Then as a class, pool your data and record in the pooled data table, #2. As a class calculate average weight difference in shells from the beginning to the end of the time period.



Table 1: Individual Weight Data

Variable	Date	pH	Weight (grams)	Description/drawing
Control DH ₂ O				
Control DH ₂ O				
Weight Difference				
Manipulated, vinegar				
Manipulated, vinegar				
Weight Difference (gm)				



Table 2: Pooled Class Weight Data for Controls (DH₂O)

Shell#	Beginning Weight	Ending Weight	Difference	% Difference
Group 1				
Group 2				
Group 3				
Group 4				
Group 5				
Group 6				
Group 7				
Group 8				
Group 9				
Group 10				
Average				
Median				

Table 3: Pooled Class Weight Data for Manipulated Variable, (Vinegar)

Shell#	Beginning Weight	Ending Weight	Difference	% Difference
Group 1				
Group 2				
Group 3				
Group 4				
Group 5				
Group 6				
Group 7				
Group 8				
Group 9				
Group 10				
Average				
Median				



Do the results match your prediction? How does ocean acidification affect the shell building process?

[illegible]