An NSF GK-12 Project
University of California
Santa Cruz

Ocean Acidification Lab Worksheet

Name_____

Pre-lab questions

1. How do organisms make their shells? What are shells made of? Write out both the chemical formula and the material.

   _____
   _____
   _____

2. What do you expect to happen to the shell in an acidic solution such as vinegar?

   _____
   _____
   _____

3. What are sources of carbon dioxide and which of these sources are most likely to affect ocean pH?

   _____
   _____
   _____

4. Hypothesis

   _____
   _____
   _____
   _____

Post-lab questions

1. When you immersed the shells in vinegar, how did you know that a reaction was happening?

   _____
   _____
   _____

SCWIBLES (Santa Cruz-Watsonville Inquiry-Based Learning in Environmental Sciences) is an NSF-GK-12 project, #DGE-0947923, a partnership between the University of California, Santa Cruz, and the Pájaro Valley Unified School District. For more information, see: http://scwibles.ucsc.edu

Lab questions adapted from the ScienceBridge Ocean Acidfication Teacher Guide. Babendure, J., Bartzat A., DeAngelis M., Gastil H., Glenn Lee S., Liwanag H., Lyman J., and J. Short, UC San Diego, 2011.

2. Write down the chemical reaction you just observed. The chemical formula for acetic acid (vinegar) is $C_2H_4O_2$.

_____
_____
_____

3. What type of gas is being produced by this reaction?

_____

4. How is this reaction similar/different from the reaction during the bubbles protocol?

_____
_____
_____

5. How did observing the shells in vinegar relate to how animals are affected by a lower pH of ocean water?

_____
_____
_____

6. How would shelled organisms be affected by a lower pH of ocean water?

_____
_____
_____

7. What are the primary functions of shells for these animals?

_____
_____
_____

8. Does it cost the animal energy to rebuild or repair their shell?

_____
_____
_____

9. Conclusion / summary (revisit hypothesis)

_____
_____
_____
_____