



High School Science Virtual Learning

College Chemistry

At Home Labs

May 1st, 2020



High School College Chemistry

Lesson: May 1st, 2020

Objective/Learning Target:

The Learner will have the opportunity to reinforce concepts learned in previous lessons with simple labs they can perform themselves with things commonly found at home.



Bellringer

1. What makes a substance an Acid?
2. What is the difference between a weak acid and a strong acid?



Bellringer Answers

1. Any substance that donates a Proton (H^+) ion
2. A weak acid only slightly ionizes to give up some of its H^+ ions, a strong acid completely ionizes giving up all of its H^+ .



Lab

Materials needed:

Day 1

A glass

1 egg

Vinegar (I would use white, but cider vinegar will work)

Day 2

A glass

Egg from the day before

Honey



Lab

Note: the last time I did this I seem to recall an odor, it might have just been from the vinegar. **MAKE SURE YOU HAVE YOUR PARENTS PERMISSION BEFORE BEGINNING.**

Warn your family and put this somewhere it won't be spilled or possibly consumed, not harmful but I imagine it would be gross. Watch the video and follow the instructions by the Space Gal.

[The Science Behind the Naked Egg Experiment-The Space Gal \(6:34\)](#)

Space Gal's real name is Emily Calandrelli. She is an MIT Engineer. [Learn More](#)



Questions

1. Write a balanced equation showing the reaction of Vinegar (acetic acid) and Calcium Carbonate
2. What do you think would happen if you used a stronger acid like hydrochloric acid?
3. How is the egg in honey similar to putting salt on a slug?
4. If you have done the lab and are willing, take a picture of the egg after the vinegar and the honey and email it to your teacher.

Answers

- $$\text{HC}_2\text{H}_3\text{O}_2 + \text{CaCO}_3 \rightarrow \text{Ca}(\text{C}_2\text{H}_3\text{O}_2)_2 + \text{H}_2\text{O} + \text{CO}_2$$

Actually the H^+ and CO_3^{2-} form Carbonic Acid H_2CO_3 which is unstable so immediately decomposes to $\text{H}_2\text{O} + \text{CO}_2$
- HCl Being a stronger acid you might expect for the reaction to take place faster, however I am not sure what might happen to the inner membrane, might be interesting to try.
- The lack of moisture in the salt draws the water out of the slug, essentially killing it, just as the lack of moisture in the honey draws the water out of the egg.