

Egg in Vinegar Experiment

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What are experimental materials?

- ▶ One raw egg
- ▶ Vinegar
- ▶ A clear glass

Scientific Method

- ▶ Step 1. Questions
- ▶ Step 2. Research
- ▶ Step 3. Hypothesis
- ▶ Step 4. Experiment
- ▶ Step 5. Observations
- ▶ Step 6. Results
- ▶ Step 7. Share my results

Step 1. Question

What will happen if I put a raw egg in vinegar?

Step 2. Research

- ▶ "Eggshell" is made of "calcium"
- ▶ The calcium in our bodies is in our bones and teeth!!!
- ▶ "Vinegar" is an "acid"
- ▶ The acid is any substance that in water solution tastes sour (e.g., vinegar or lemon juice) and promotes certain chemical reactions
- ▶ Calcium is dissolved in vinegar

Step 3. Hypothesis

My hypothesis is that because eggshell is made of calcium, eggshell is dissolved in vinegar

Step 4. Experiment

- ▶ 1. Place the egg in a tall glass and cover the egg with vinegar
- ▶ 2. Look closely at the egg. There will be tiny bubbles forming on the shell
- ▶ 3. Leave the egg in the vinegar for full 48 hours
- ▶ 4. 48 hours later, pour off the vinegar and carefully rinse the egg with water
- ▶ The egg looks translucent because the shell is gone!!!!

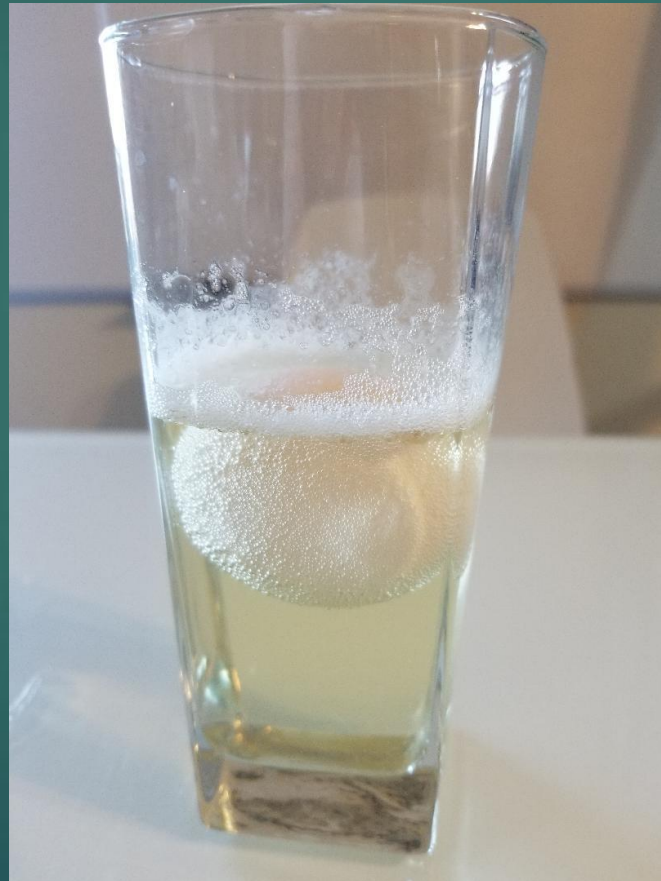
Step 5. Observations

I recorded my observations!!!

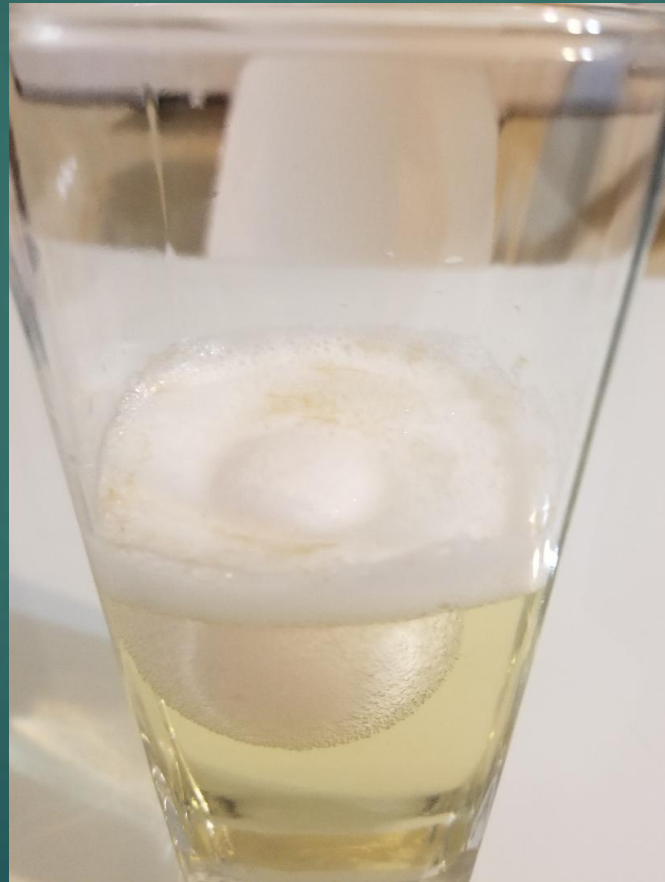
30min. later



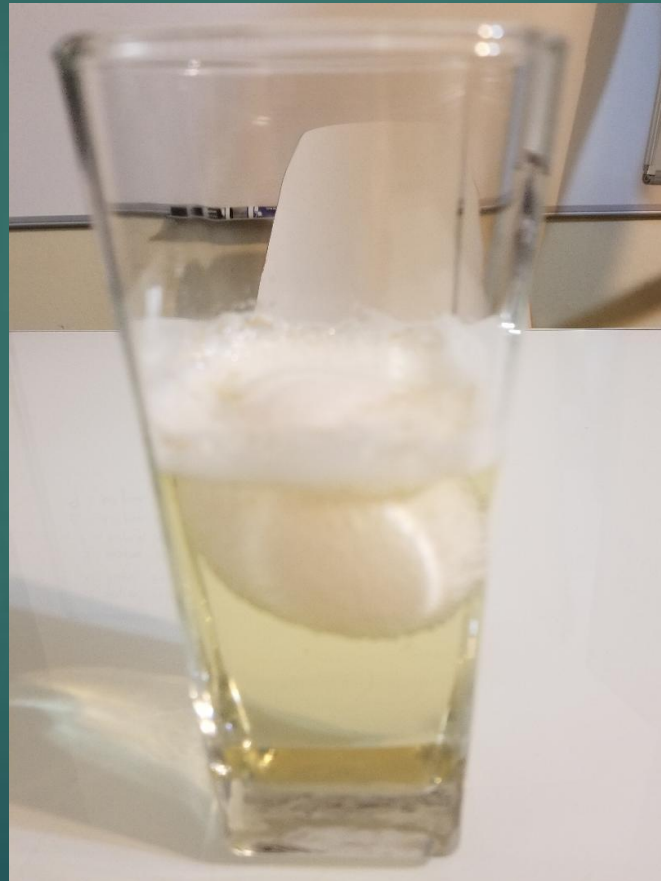
1 hour and 30 min. later



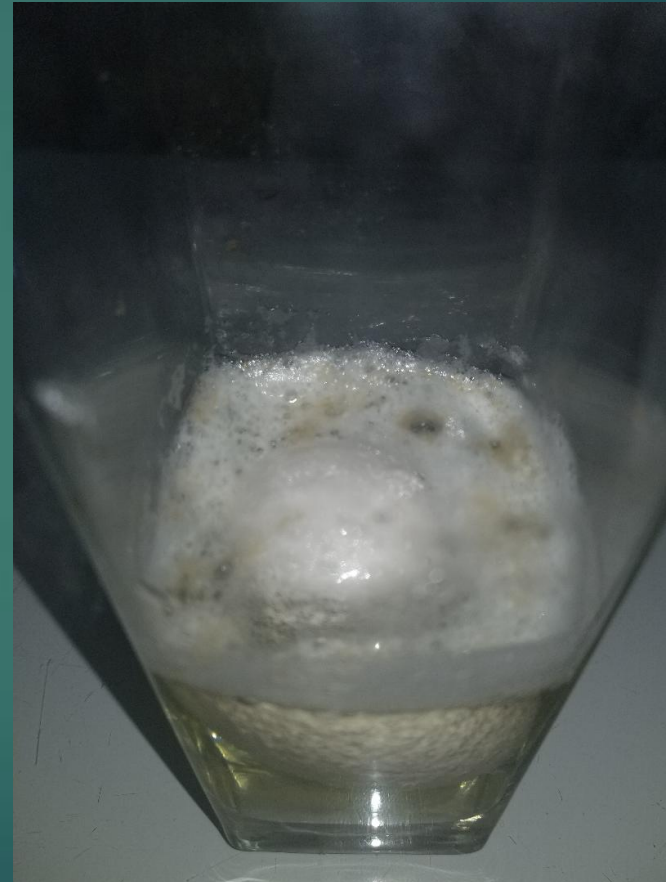
3 hours later



6 hours later



24 hours later



48 hours later



Step 6. Findings/Conclusion

Findings:

- There are bubbles forming on the surface of eggshell
- 48 hours later, the egg looks translucent because the shell is gone

Conclusion:

- **The calcium carbonate** in the eggshell reacts with the acid (vinegar) and releases **carbon dioxide gas (CO₂)** that you see as bubbles on the shell
- ❖ Carbon dioxide gas (CO₂) is just like the bubbles in a glass of soda

Step 7. Share my results

Take it further:

- What if I use concentrated vinegar instead of traditional vinegar or apple vinegar, or grape vinegar, or rice vinegar?
- What if I change the vinegar after 24 hours?
- What if I use a yellow egg instead of a white egg?
- What if I put the egg soaked in vinegar in the refrigerator or leave it out of refrigerator at room temperature?
- What happens if I leave the egg soaked in vinegar for a week or too long?