

Questions

1. What conclusion can be drawn from this experiment?
2. How is your conclusion similar to the one from the US military when looking at missiles in the film in the previous module?
3. Describe 2 things done in setting up the experiment to make sure it was controlled and that there was only 1 variable.

A

B

4. Describe 2 possible sources of experimental error that could occur in such a set up if you were not careful.

A

B

5. Write your own question or suggestion.

Extra Credit (10 points) - Repeat this at home using the sun or heat lamps as your heat source. Film the experiment until the temperature levels off or declines. Share your data, graph, and video. The soda bottles and Alka Seltzer are easy to obtain. The meat thermometers are not as common. If nothing happens, hypothesize why. Discuss your results.

Overview - You will graph the results from a simple experiment comparing the temperature of a 2-liter bottle containing normal atmospheric air against a bottle enriched in CO₂. The data below are from running this experiment at home. Dr. Michel and I filmed this video in our lab room, running the experiment for a dozen minutes before realizing that showing you the set up and sharing the data is more efficient than watching the temperatures rise for 10 minutes. This is why the video stops abruptly at 2:00. If you do want to watch temperatures rise in such an experiment, check out the numerous [YouTube videos](#).

Note - This lab is a general qualitative lab not a (quantitative lab) meant simply to show the effect of carbon dioxide on temperature. We are not measuring the concentration of the CO₂ or the watts/square meter.

Directions

- A. Watch [this short video](#) to familiarize yourself with the experimental setup.
- B. Paste the data from the table below into a Google Sheet. Give your sheet a good title by clicking on "[untitled spreadsheet](#)" at the top. Ensure that your three columns have appropriate headers.
- C. Click and drag across your Google Sheet data from *minute* in the top left to 83.34 in the bottom right. Everything you entered should be highlighted.
- D. With all the data highlighted, select Insert / Chart. This will make a double line chart. (If you forgot how to make a graph from Google Sheets, look at the video of the CO₂ lab in our previous module.)
- E. Take and save a screenshot of your graph and data table. That image will be inserted at the bottom of your questions and answers.

Data Table

Air Temperature in °F of Normal Air vs. CO₂ Enriched Air

Minute	Normal	CO ₂
0	49.5	45.54
1	55.98	59.04
2	63.18	67.86
3	67.68	73.26
4	70.2	76.68
5	71.64	79.02
6	72.54	80.64
7	73.26	81.54
8	73.98	82.08
9	73.98	82.62
10	73.62	83.34