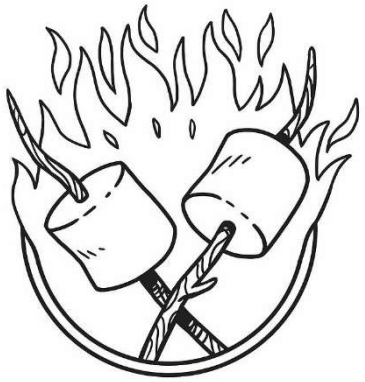
Marshmallow Lab

name

40 Lab minutes - Thermochemistry



Objective: To experimentally determine the number of Calories in marshmallows and to compare our measurement to the actual value.

Procedure: Observe the set up as shown by the teacher. Set up your own ring stand and connect your can to a glass rod, suspend it above the marshmallow as shown. You will need a piece of aluminum foil approximately 6 x 6 inches. A cork and a nail will also be needed.

Data Table		units
1	Mass of the dry seltzer can	grams
2	Mass of can + about 325 mL deionized water	grams
3	Initial temp water in can	°C
4	Mass of marshmallow	grams
5	Final temp water in can	°C
5	ΔT water	°C
6	Calories/gram from nutritional label	Calories
7	Mass of your marshmallow	grams
8	Exact Calories in your marshmallow	Calories

When you are done, put the burnt marshmallows to the trash, soap and water the nail/cork and put out to dry. Wash the thermometers off too. The soot on the bottom of the cans will blacken your fingers for days, use the foil to hold the cans, dump the water out, and put cans into the TRASH, they are unrecyclable.

This lab report must have all the boxes on the first page filled in.
The math must be attached on a separate sheet of paper.

Write a well-organized paragraph that includes the answers to the questions below, which will explain exactly what you did in this lab. Do your math work on that separate sheet of paper, which you will staple last in the lab report.

1. How many joules did your water absorb in joules?

2. Convert these joules into Calories. This is your measured value.

3. Using the nutritional label, calculate how many Calories in YOUR marshmallow. This is your actual value.

4. Determine your % Error for this experiment.

5. Explain where this error came from.
   State if you were under or over and make it clear you understand why.