

# Coffee Can Calorimetry

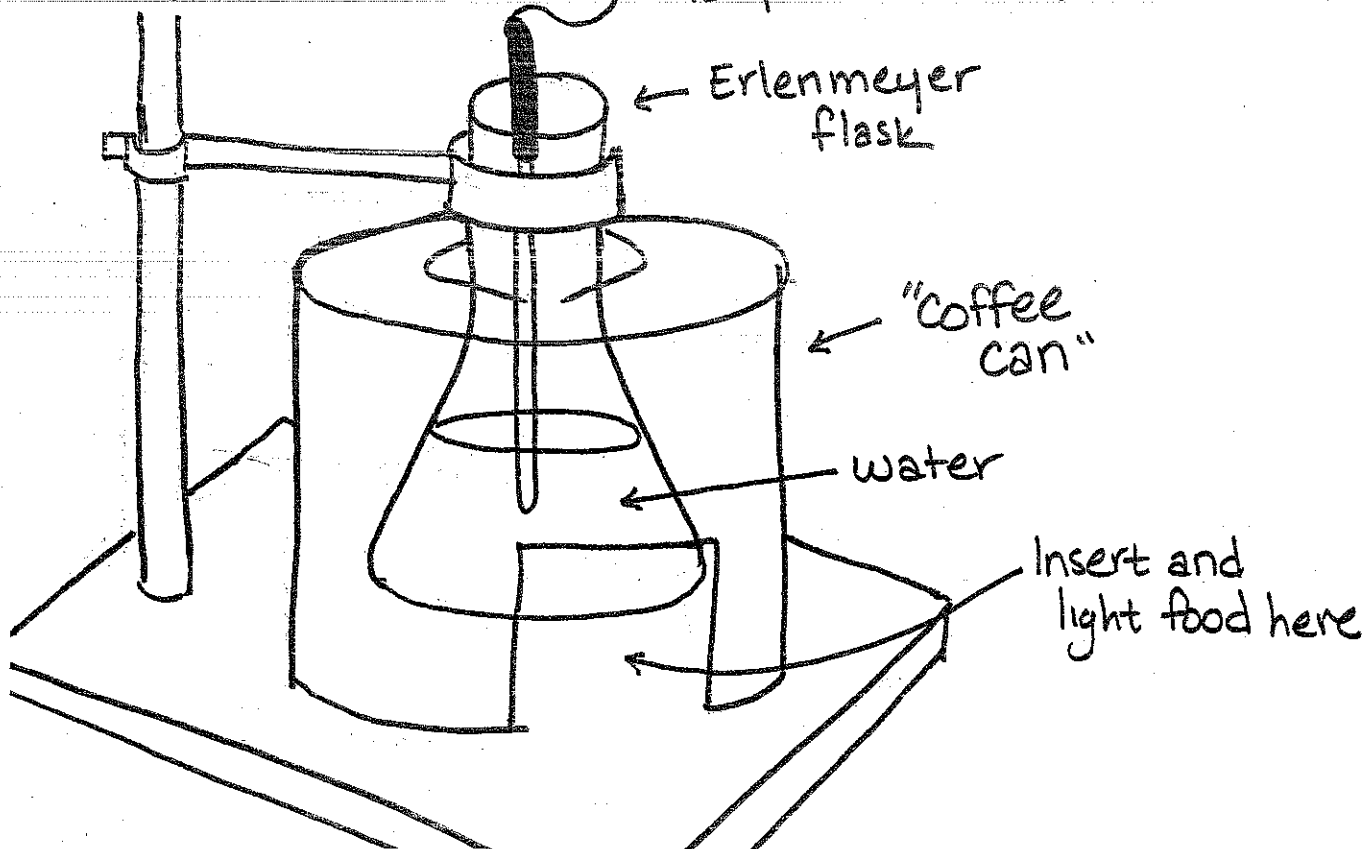
## Learning Targets:

- \_\_\_ How my work matters
- \_\_\_ I can determine the heat released or absorbed by a reaction either theoretically or experimentally
- \_\_\_ I can experimentally determine the calorie content of food
- \_\_\_ I can formulate a question or hypothesis, which can be investigated through the collection and analysis of relevant information.
- \_\_\_ I can design and conduct a controlled experiment including the collection of sufficient and appropriate data.
- \_\_\_ I can analyze data and identify uncertainties, draw a valid conclusion, explain how the evidence supports it, and communicate the findings of a scientific investigation.

**Objective:** To determine if the calorie content given on a package of food is accurate.

**Method:** Your group will use the coffee can calorimeter to compare the actual heat energy produced by the food (i.e. the calorie content) to the value reported on the package. Your group will determine the exact procedure and amounts of each material you will use. Your group will measure the temperature of the water using a computer, Logger Lite, and a digital temperature probe.

Coffee Can Calorimeter: ← Temperature Probe



Food Item to Test: \_\_\_\_\_

Nutrition Label Information

Calories: \_\_\_\_\_

Serving Size in grams: (1oz = 28.3g) \_\_\_\_\_

Hypothesis: \_\_\_\_\_

\_\_\_\_\_

Data

Volume of water in Erlenmeyer flask: \_\_\_\_\_

Mass of Food Tested: \_\_\_\_\_

(while testing the serving size might be most convenient, it probably won't fit inside the calorimeter)

Initial Temperature: \_\_\_\_\_

Final Temperature: \_\_\_\_\_

Calculations

Calculate the heat released ( $q$ ) from your sample on a *separate piece of paper*.  
Divide this value by the mass of food tested.

Results

Nutrition Label cal/gram: \_\_\_\_\_

Experimental cal/gram: \_\_\_\_\_

Conclusion

How accurate was the nutrition label?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_