

Food Calories – Calorimetry

Submitted by Nic Simonson

Objectives:

Calculate calorie content of food.

Gain further understanding of thermal equilibrium and conservation of energy.

Be able to use the specific heat capacity of water to calculate energy transfer.

Previous Knowledge:

Thermal Equilibrium

Heat Transfer

Specific Heat

Day 1:

Engage: (10 min)

- ask the class how long they think a cheeto will burn and list times on the board
- burn the cheeto and time how long it lasts
- winner gets small bag of cheetos

Explore: (25-30 min)

- In lab groups – have each group design and write up a experiment to find the amount of Energy / gram (J/g) given off by the burning cheeto, with the materials available.
- hand out and explain rubric
- ring stand, pop can, cork, needle, water, thermometer
- all information needed is in the book
- answering questions held to a minimum

Wrap Up: (10 -15 min)

- answer more questions
- make sure that all procedures are done and going to be okay

Day 2:

Introduction: (5 min)

Experiments: (30 -35 min)

- set up and begin experiments
- run at least two trials – three if time
- calculate the Joules / gram of each trial
- list findings on the board and find average

Wrap Up: (5 min)

- think about how this relates to food calories

Day 3:

Introduction: (5 min)

Discussion: (25-30 min)

- what is the difference between Joules, calories, and Calories
- how does what we find relate to Calories in food
- how much energy do we consume everyday
- find the total Calories in the bag of cheetos – group that get the closest win bag

Evaluation: (15 min)

- Quiz on Joules, calories, Calories, and Specific Heat