

Releasing Stored Energy



Essential Question: Does the type of material burned make a difference in the amount of energy that is released?

Overview

You observed in *Stored Energy in a Corn Chip* that corn chips contain stored energy. Burning the corn chip releases energy, as shown by the heating of the water in the can. In today's activity, you will quantify the number of calories in some other foods and compare their stored energy. In so doing, you will be able to correlate the stored and released energy in food with the information you learned about coal.

Overview

For the class:

- 3 alternative food sources (e.g., cereal flakes, nuts, potato chips, etc.)
- 1 electronic mass scale
- 1 ball of string
- 1 box of kitchen matches
- access to water

For each group:

- 1 wire hanger
- 1 roll of aluminum foil
- 1 pair of needle-nose pliers
- 1 empty aluminum can with pull tab attached
- 1 ringstand
- 1 burette clamp for ringstand
- 1 plastic, 100-mL graduated cylinder
- 1 alligator clip
- 2 thermometers

Safety Concerns

Follow standard safety rules and school safety rules for laboratory activities.

Procedure

1. Gather the calorimeter you used in the previous lesson and three other food items your teacher will provide.
2. Construct a data table similar to the one below.

Food Item	Mass of food item (g)	Temperature of water before burning ($^{\circ}\text{C}$)	Temperature of water after burning ($^{\circ}\text{C}$)	Calories