C1: ENERGY AND FOOD

Overview

These activities can be used to introduce students to energy – what it does, where it comes from, and how it can be measured. The focus is on the connection between **work**, **energy** and **food**, and the activities aim at helping students to learn how to read food labels and to understand the factors that affect reaction rates and the role of effective surface areas.

Suggested approaches:

- Let the students brainstorm and collect their ideas about energy.
  - ? ***What does energy do?***
  - ? ***Where does it come from?***
  - ? ***Can it be measured?***
  - ? ***How is it measured?***
  - ? ***Is there a connection between work, energy and food?***
- During the brainstorm set up the activity **C1 ACTIVITY 1: FOOD ENERGY**. Use this activity to refine the students' understanding of the energy changes taking place.
- The energy released by food is calculated using the formula shown in Figure 1. It is advisable that students are familiar with this formula before undertaking the tasks, so that they are able to compare their results with the data given on food labels.

  Introduce the formula explaining that 4.2 is the specific heat capacity of water, i.e. the amount of joules (J) required to raise the temperature of 1 gram of water by 1°C.

$$\text{Energy released from food per gram (J)} = \frac{\text{mass of water (g) x temperature rise (°C) x 4.2}}{\text{mass of food sample (g)}}$$

Figure 1: Formula for calculating energy released

- After observing the teacher carrying out the first part of **C1 ACTIVITY 1: FOOD ENERGY**, students can set up their own investigation to find out how much energy is supplied by each of a selection of foods.

NOTE:

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