Food Energy

You need

- the energy intake table (see copymaster)
- access to the Internet or other sources of information on food values and the body's energy needs
- a peanut (or walnut)
- a thermometer
- paper clips
- a sugar cube
- saucers
- matches
- a classmate

Investigation

Investigate Ngaio's questions.

Activity One

1. George is trying to work out how much potential (stored) energy there is in different types of food.

With a classmate, try George's experiment:

i. Use a paper clip to make a stand that will hold a peanut and put it on a saucer.

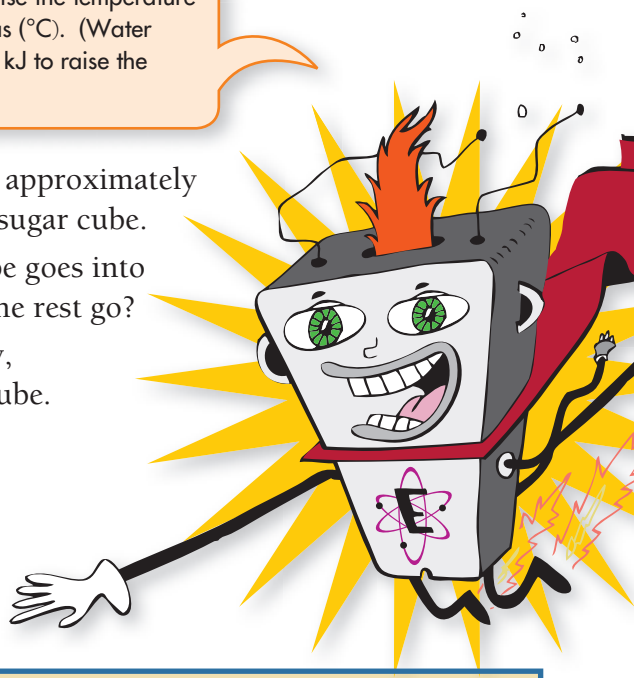
ii. Make a similar stand to hold a sugar cube.

iii. Measure and record the air temperature in the room.

iv. With adult supervision, set the peanut on fire. Hold the thermometer about 10 centimetres above the flame (don't let it get any closer). Record the maximum temperature reached.

v. When the thermometer has returned to the temperature of the room, repeat the experiment with the sugar cube (you may need to grind some of the cube to help it catch alight).

2. Kilojoules (kJ) are a measure of energy. 1 kJ will raise the temperature of 1 litre (L) of air by approximately 1 degree Celsius (°C). (Water is harder to heat than air – it takes approximately 4 kJ to raise the temperature of 1 L of water by 1°C.)



a. Using your temperature observations, calculate approximately how much energy there is in a peanut and in a sugar cube.

b. Not all of the energy in the peanut or sugar cube goes into the air around the thermometer. Where does the rest go?

c. If a peanut actually stores about 20 kJ of energy, estimate how much energy there is in a sugar cube.

Activity Two

1. Mum says I'm always hungry because I run around so much!

Suggested daily energy intake (in kJ) by level of physical activity (www.mydailyintake.net/di_calculator.php)

Age	Boys		Girls	
	Not active	Very active	Not active	Very active
9	6 800	9 700	6 400	9 100

Use the website above (it has 6 activity levels) or your copy of the energy intake table to find your suggested daily energy intake.

2. a. Choose 4 kinds of food that you enjoy. Using only those foods, make up a menu for 1 day that is close to your suggested daily energy intake.

b. 1 can of cola has about the same amount of sugar as 8 sugar cubes. That's a lot of energy!

How useful would the foods you chose in **2a** be in terms of meeting your nutritional and health needs? Explain.

3. a. Use information on food values to calculate how much energy is in the food you eat on a typical day.
(Hint: First make a list of what you ate yesterday.)

b. Plan an enjoyable healthy menu for 1 day that would supply your suggested daily energy intake.

Focus Calculating proportions, using energy values of food