

Food for thought

How much energy does the food you eat and drink provide for your body? Have you looked on the side of food packs? They often tell you how much energy is provided per 100g you eat.

Your body needs lots of energy for the jobs it does.

Q. Can you list jobs your body needs the energy for?

In this experiment we will compare different foods for the energy they produce.

If we are to have a fair test, we must either get the same quantity of food to test and burn it completely or to burn the fuel for a set period of time. We will be heating a small amount of water and measuring the temperature increase over this time.

Method.

1. Set up the equipment as shown in the diagram opposite. Place the stand in F1.
2. Using a measuring cylinder, put exactly 20.0 ml of water in the copper vessel (calorimeter).
3. Attach this to the plastic head which is attached to the stand.
4. Weigh out your sample of food (use the same weight for each sample) and attach it to the mounted needle.
5. Take the original temperature of the water and note this down.
6. Place microburner in E6 (away from the calorimeter) & light the burner.
7. Place the food sample in the microburner flame to ignite.
8. Once the sample is lit place it under the calorimeter.
9. Continue to heat the water until all the sample is burnt.
10. Take the final temperature, noting this down.
11. Calculate the overall temperature rise (*final temp. – original temp. = temp. rise*)



Allow to cool, then discard the warm water and refill the calorimeter with 20.0ml of water.

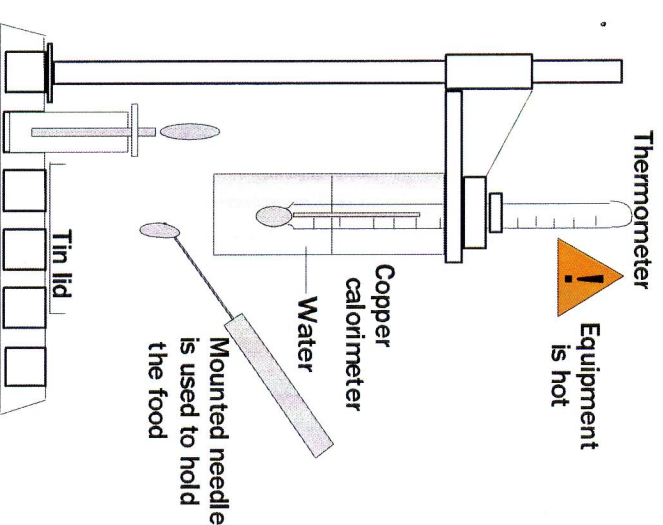
Repeat steps 3-12 until you have tested all the available food types.



Eye protection
must be worn



Hot equipment & naked flames



Food for thought

Name _____

1. Results

°C	Dried bread	Food 2	Food 3	Food 4	Food 5
Mass of foodstuff					
Start temp					
Finish temp					
Rise in temp					

2. Which food, if any, provided the most energy?

3. Draw a bar chart of your results – attach it to the back of this sheet.

4. Below is a food label. Complete the following questions about it.

Name of food Crisps

	Per 100g example	Percentage composition
Energy*	2180kJ	
Protein	6.5g	
Carbohydrate	50.0g	
Of which are sugars*	2.0g	
Fibre	1.0g	
Vitamins	-	
Minerals	0.2g (sodium)	
Fat	8.3g	
Of which are saturates*	2.5g	
Water		
Total		

5. Total up, but do not add in those with an asterisk *.

6. Why does the total not add up to 100g?

7. How much water is present in 100g of crisps?

8. How much starch is present in 100g of crisps?

9. Fats can be split into two groups. Name the two groups.

10. Complete the table by totalling the percentage composition.

11. Draw a bar graph showing the nutritional composition of the crisps.