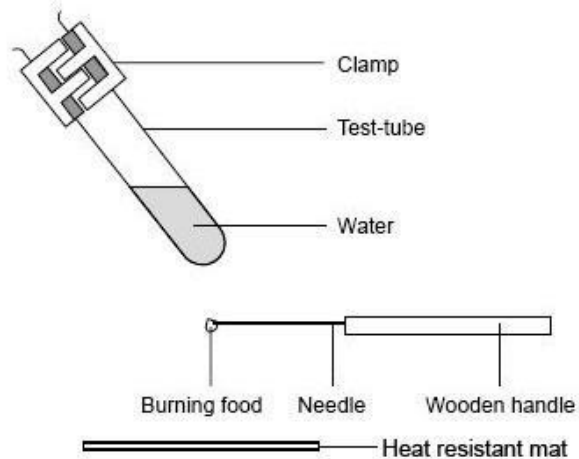


Measuring the Energy Content of Food

Respiration is similar to burning, in that oxygen is combined with the food or fuel to release energy.

We can estimate the energy content of our food by burning it and measuring how much a known volume of water increases in temperature.

Apparatus



Method

1. Take a shreddie and carefully spear it on to a mounted needle.
2. Put 10cm³ cold water into a boiling tube.
3. Measure the temperature of the water.
4. Set light to the shreddie by holding it in a Bunsen flame. Keep the Bunsen away from the water.
5. When the shreddie is burning, hold it under the boiling tube until it is completely burnt.
6. Record the new temperature of the water.

Results

- Temp. of water at start _____
- Temp of water at end _____
- Increase in temp. =

1cm³ of water = 1 g

1. It takes 4.18 joules of energy to raise 1g of water by 1°C. Calculate how much energy was in your shreddie.
2. Is it a fair comparison to compare your shreddie with others in the class. Explain why?
3. How could we make it a fair comparison?
4. Did all of the energy from your shreddie go into heating up the water?
5. If not, explain what else happened to it?
6. Are there any other inaccuracies?
7. How could you improve the design of this experiment so that more energy in the shreddie went into heating the water.