Energy Resources and Energy Transfer: Measuring Energy in Foods

Year 8

WC 22nd October

Title: Measuring Energy in Foods

WALT: Design experiment to test energy in foods

I must be able to list the energy transfer taking place when a bungee jumper jumps

I should be able to identify where energy changes have taken place to produce food

I could design an experiment to show how much energy foods have in them

Starter

- Watch the movie clip about roller-coasters - http://videos.howstuffworks.com/science-channel/39684-machines-rollercoaster-video.htm

- While you are watching – write down the sequence of energy transfers that take place when the rollercoaster climbs and then dives

Last lesson we learnt

- About the different types of energy, which are.....

- That energy is often transferred. An example is.....

So can energy be destroyed or ‘lost’?

- Energy is never destroyed or created
- Only transferred into other forms of energy
- Some of these forms might be unwanted (e.g. heat in a bulb) therefore people might refer to it as energy ‘lost’

This is called the Law of the Conservation of Energy


PHOTO BY YAN, FLICKR.COM/PHOTOS/KUTU

Bungee Jumper

When a bungee jumper jumps:

1. Some of the gravitational potential energy of the jumper changes to ..... energy as he falls with the rope slack.
2. Once the slack in the rope has been used up, the rope ..... the jumper's fall.

   Most of the gravitational and some of the ..... energy is changed into ..... energy.
3. After reaching the bottom, the rope pulls the jumper back up. As the jumper rises, most of the ..... energy of the rope changes back to ..... and ..... Energy.

4. The bungee jumper doesn't return to the same height as at the start because some of the original gravitational energy has been changed to ..... energy as the rope stretched and then shortened again.

We know that **energy is measured in Joules (j)**

1 joule will raise the temperature of 1cm^3 of water by one degree Celsius

Thinking back to the topic of Digestion, how could we measure the energy content of some foods?

This time we are going to be much more accurate with our measurements…..

Turn to page 343 of red books

- We will carry out this experiment with a variety of foods.
- What will be our input and outcome variables?
- How do we keep it a fair test?

- For each food, note down the temperature reading on the thermometer.

- Write a method, diagram, results and conclusion.

Plenary

1. How could our experiment have been more accurate?

2. Can energy ever be lost?

3. A ball dropped onto a trampoline returns to almost the same height after it bounces. Why does it not return to its exact height?