

## Activity 1

### Making a Simple Battery

Materials you will need:

- a large juicy lemon or lime
- a small piece of copper strip
- multimeter or a 1.5v bulb & holder
- a small piece of zinc strip
- two electric leads

An easy way to demonstrate how a battery generates electricity is to place a zinc strip and a copper strip into a juicy lemon. Connect each strip to crocodile leads. Measure the current generated using the multimeter, an instrument that measures electrical current.



Multimeter

The current in a lemon battery is very small, 1.4v, and will only show as a glimmer, even when using a small voltage bulb (1.5v). It is best to use a multimeter to measure the current from this simple lemon battery.



Simple lemon battery

#### ⇒ Portfolio

Make a drawing of your circuit in your portfolio and label the parts of the circuit. Draw and make notes of your experiments.

Reproducible portfolio pages are provided in the Appendix.

## What is an Electrical Circuit?

During your investigations into electricity and magnetism you will find out that two negatives will repel one another, while a negative and a positive will attract one another. This can be found out when experimenting with magnets. Opposite poles will be drawn towards one another, and like poles will move away from each other. This principle is the same with a battery. The battery poles are called terminals. The electron has a negative charge. Therefore, the negative terminal on the battery will repel the negative charged electrons and send them out of the battery along a conductor (usually a copper wire covered with an insulating plastic). The positive terminal will attract the flow of negative electrons and electricity will flow through the *circuit* from the negative terminal to the positive terminal.

### Important facts

- An electrical circuit must have an electrical energy source, a battery.
- An electric current can only travel through materials that conduct electricity.
- If the circuit is disconnected, the electric current cannot flow.
- Electricity flows through the circuit from the negative terminal (-) on the battery to the positive terminal (+).