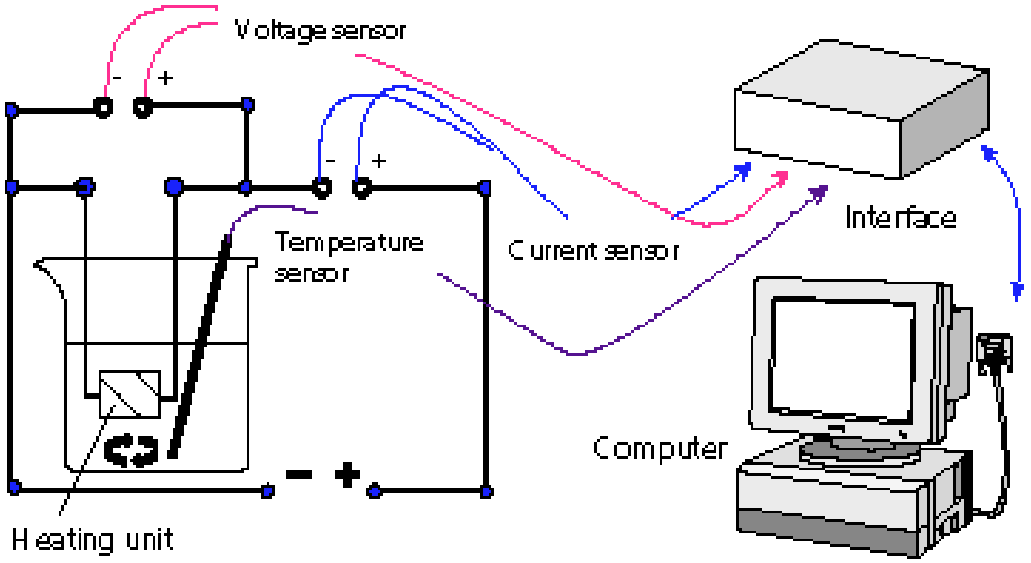
Heating effect of an electric current



The temperature, voltage & current of a heating unit are measured over a period of time. This allows us to calculate the power of the heater (voltage x current), and then to plot this against the temperature. As the power increases, so does the temperature. Your software can produce the graphs quite easily.

Apparatus

Heater unit (e.g. 24W), smoothed 12V DC power supply, interface, temperature, voltage and current sensors.

Setting up

Connect up the circuit as shown. Place exactly 100 cm^3 water in the beaker.

Connect the current sensor to socket 1, the voltage sensor to socket 2 and the temperature sensor to socket 3.

If the sensors are adjustable, set a 2A range on the current sensor, a 10V range on the voltage sensor and a 0-100 range on the temperature sensor. Some systems recognise the sensors you attach automatically, in others you do this yourself.

You may be able to set up the software to plot the energy (V x I x time) against temperature as the experiment proceeds.