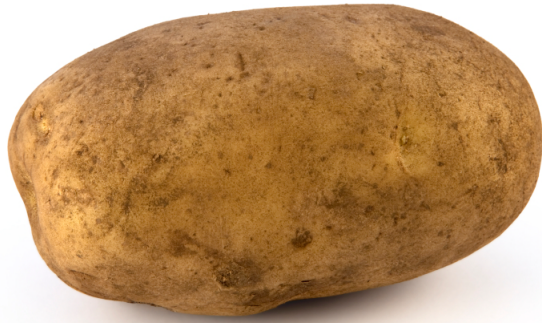


Battery Power Experiments:

Experiment 2:

Can organic materials be used to make effective batteries?

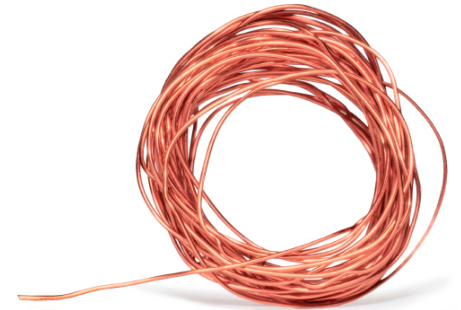
You will need:



Some potatoes



**A galvanized screw
or nail
(containing zinc)**



**A small piece of
copper wire**



**A pair of insulated
wires with
crocodile clips**



**Multimeter
or voltmeter**

**A selection of
organic materials**

Test the voltage of one potato cell using a multimeter.



Set up the multimeter:

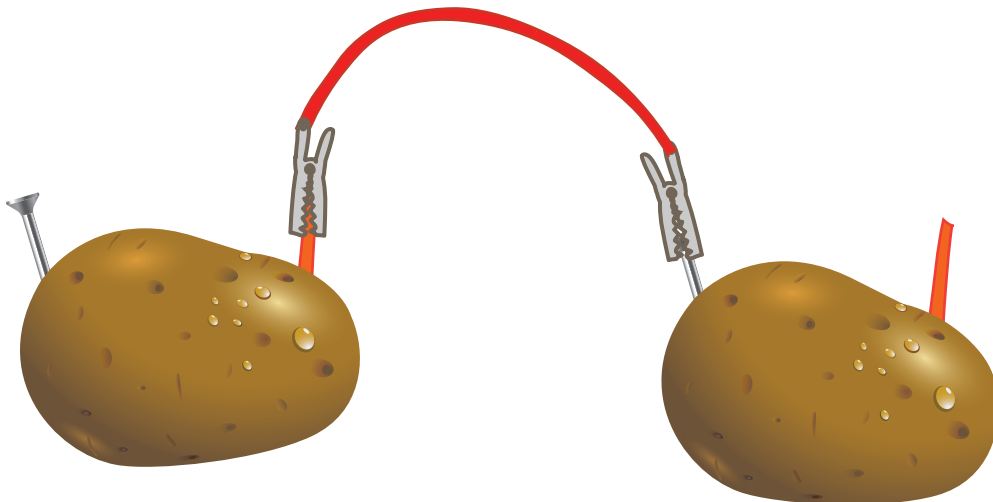
- 1) Turn the selector knob to the lowest *DC voltage* option (2V).
- 2) Connect the black lead to the *com socket* and the red lead to the *VΩ socket* of the multimeter.
- 3) Turn the multimeter *on*.

Connect to the potato cell:

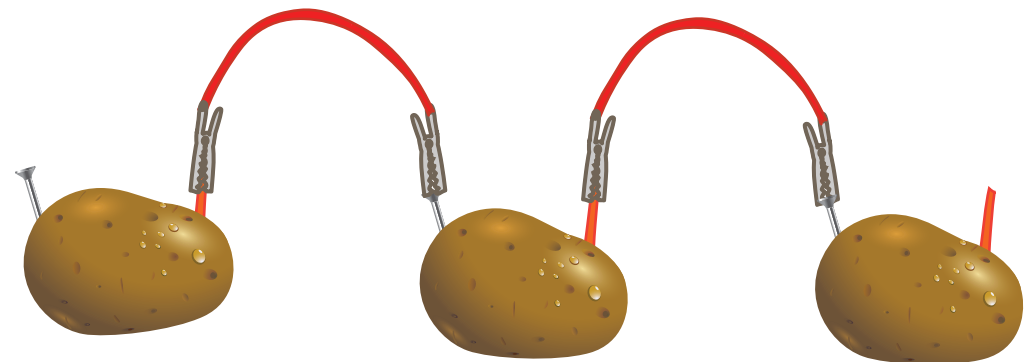
- 1) Touch the probe of the black lead to the galvanized nail.
- 2) Touch the probe of the red lead to the copper wire to complete the circuit.

Record the measurement on your worksheet.

Repeat the experiment with two potatoes in series.

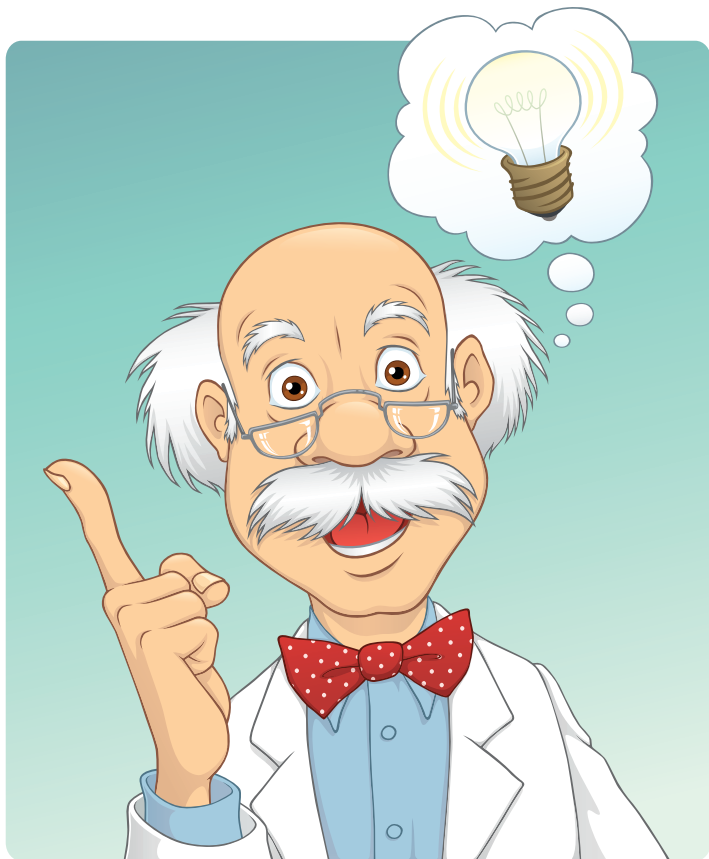


Repeat the experiment with three potatoes in series.



Try the experiment again using potatoes that have been boiled for 8 minutes.

(Wait until they are cold to touch so they can be handled safely)



Did this make any difference to your previous results?







Take some measurements:



Chemical reactions takes place between the zinc in the screw, the acid inside the potato and the copper wire.

The two metals release electrons at different rates as they dissolve in the potato. These electrons are pushed along the connecting wires, creating a small electric current.

Record your results on your Studyladder worksheet.

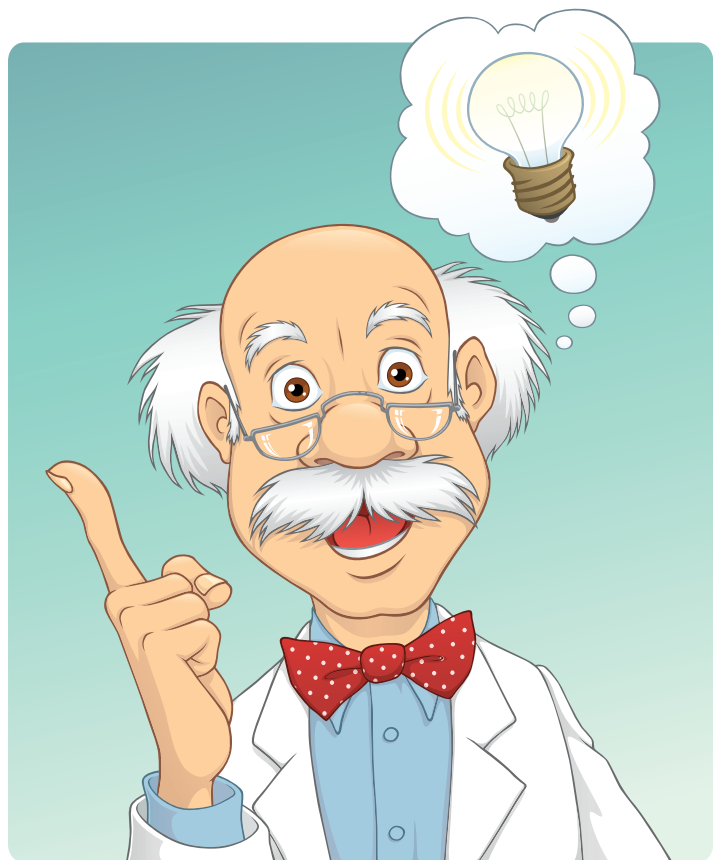
Making Batteries		Name:	Date:
Aim: To find out which plant materials make the most effective electrochemical cells.			
Equipment I used:		Diagrams:	
			
			
Observations: Fill in your results with voltage readings in the table below.		Results:	
Organic Material	single potato	series	Prediction
	(left) (right) (left) (right)		Volts
potatoes			
boiled potatoes			
Why are some organic materials better than others?			

Connect a multimeter instead of the light bulb to measure how much voltage is produced.

Experiment with more examples of organic materials.

Perhaps you could try:

- Fruits and vegetables.
- Oil or vinegar.



What types of organic materials allow electrochemical reactions to take place?

Which ones worked best?