



ELECTRICITY

A collection of experiments investigating electricity and chemical reactions

Curriculum Links

Sc1 Testing ideas, planning investigations, observing & measuring

Sc4 Understanding electricity, simple circuits & drawing circuit diagrams

Sc3 Characteristics of materials, changing materials & chemical reactions

Summary of Experiments

General Format: Four experiments for the whole class (in 6 small groups) or as a carousel, plus a small group / demonstration experiment

- ELECTRICAL CIRCUITS ~ construct circuits with batteries & lamps
- COMPARING CONDUCTIVITY ~ test different solids & liquids
- POTATO POWER ~ build a circuit to run a clock without batteries
- ELECTRO-PLATING ~ use electricity to drive a chemical reaction
- SPLITTING WATER ~ observe a chemical reaction driven by electricity (Demo)

Health & Safety Considerations

ADULT SUPERVISION REQUIRED

NO EATING OR DRINKING IN THE LABORATORY

ALWAYS WASH YOUR HANDS AFTER USING CHEMICALS

THROUGHOUT: WARN PUPILS OF THE DANGERS OF MAINS ELECTRICITY. THEY SHOULD NEVER INVESTIGATE OR PLAY WITH MAINS SOCKETS & ELECTRICAL EQUIPMENT.

EMPHASISE THAT THE WORK THEY DO IN CLASS IS SAFE BECAUSE THEY USE BATTERIES WHICH ARE MUCH LESS DANGEROUS.

PUPILS MUST BE WARNED NOT TO CUT OPEN BATTERIES OR SHORT-CIRCUIT THEM.

Box Development by: Emma Gaylard, Westbury Park Primary School



ELECTRICITY

EQUIPMENT LIST

Item	Number in Box	For Experiment/s	Returned?
AA Batteries (1.5V)	6	Electrical Circuits Comparing Conductivity	
AA Battery holders	6	Electrical Circuits Comparing Conductivity	
D-cell Batteries (1.5V)	6	Electroplating	
D-cell Battery holders	6	Electroplating	
9V Battery	1	Splitting Water	
9V Battery connector	1	Splitting Water	
Lengths of wire (red & black)	30 total	30	Electrical Circuits
		18	Comparing Conductivity
		18	Potato Power
		12	Electroplating
		2	Splitting Water
Crocodile clips	60 total	60	Electrical Circuits
		36	Comparing Conductivity
		36	Potato Power
		12	Electroplating
		4	Splitting Water
Bulbs (1.2V)	6	Electrical Circuits Comparing Conductivity	
Bulb holders	6	Electrical Circuits Comparing Conductivity	
Multi-meters	6	Electrical Circuits Comparing Conductivity	
		Potato Power	
Battery tester	1	Electrical Circuits Comparing Conductivity	
		Electroplating	
Laminated circuit symbol cards (magnetic)	1 Set	Electrical Circuits	
Glass beakers	6 total	6	Comparing Conductivity
		1	Splitting Water
Copper electrodes	12	Comparing Conductivity	
Graphite rods	2	Splitting Water	
Solids to test (e.g. plastic pen, rubber eraser, pencil 'lead' (graphite), metal strip)	6 sets	Comparing Conductivity	
Low-voltage LED clocks	6	Potato Power	
Plastic measuring cylinders (100ml)	6	Electroplating	
Plastic bowls	6	Electroplating	



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CONSUMABLES LIST

Item	Amount in Box	For Experiment/s	Returned?
Salt (in screw-top container)	150g total	50g	Comparing Conductivity
		100g	Electroplating
1M Acetic Acid (clear vinegar)	600ml total	100ml	Comparing Conductivity
		500ml	Electroplating
Distilled Water	2.5 l total	2 litres	Comparing Conductivity
		500ml	Splitting Water
Epsom Salts (Magnesium Sulphate)	110g total	100g	Electroplating
		10g	Splitting Water
Sugar	150g	Electroplating	
Universal Indicator	10ml	Splitting Water	
Plastic Teaspoons	6 total	6	Comparing Conductivity
		6	Electroplating
		1	Splitting Water
Plastic pipettes	7 total	6	Comparing Conductivity
		1	Splitting Water
Galvanised nails	18 total	12	Potato Power
		6	Electroplating
Steel screws	6	Electroplating	

TO BE PROVIDED BY SCHOOL

Item	Number / Amount required (per class)	For Experiment/s
A selection of devices which use electricity, include a wind-up appliance if possible (e.g. torch, radio). Children could bring in toys.	Selection	Electrical Circuits
<i>Optional</i> – A long length of rope (4-6 mm diameter is ideal)	1	Electrical Circuits
<i>Optional</i> – Other solid items to test conductivity	Selection	Comparing Conductivity
Potatoes (and other fruit, if using)	2 per group	Potato Power
1p or 2p Copper Coins	2 per group	Potato Power
1p or 2p Copper Coins (Shiny)	2 per group	Electroplating