

Electricity from chemicals – student sheet

Introduction

Reactive metals form ions more readily than less reactive metals. This experiment illustrates the tendency of various metals to form ions. Two different metals and an electrolyte form a cell. The more reactive metal becomes the negative pole from which electrons flow

Equipment

Apparatus

- Eye protection
- Beaker, 100 cm³
- Galvanometer or voltmeter (0–3 V)
- Wires x2
- Crocodile clips x2

Chemicals

- Sodium chloride solution

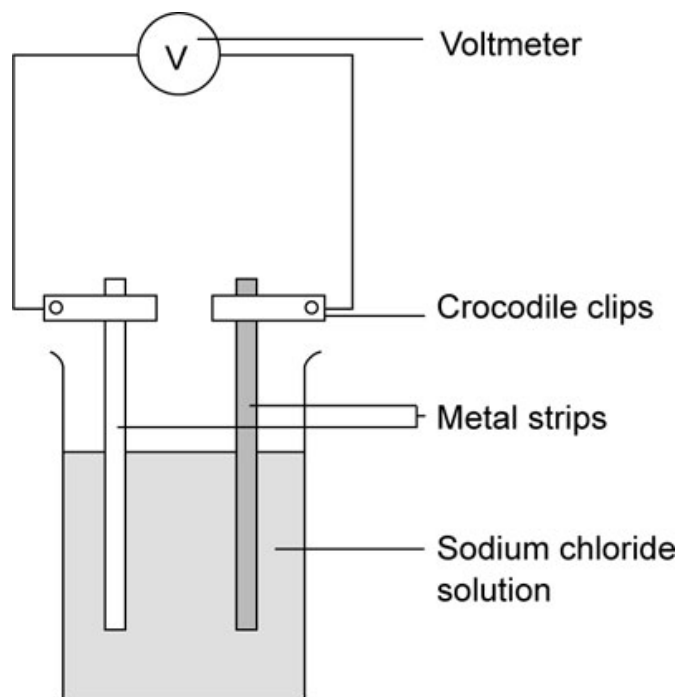
Access to strips or rods of various metals, including:

- Zinc
- Copper
- Iron
- Lead
- Magnesium

Health, safety and technical notes

- Read our standard health and safety guidance here <https://rsc.li/3EL43JQ>
- Always wear eye protection.
- Always wash hands after handling lead.
- Zinc is flammable and dangerous to aquatic life, see CLEAPSS Hazcard [HC107](#).
- Lead is a reproductive toxin, see CLEAPSS Hazcard [HC056](#).
- Magnesium is flammable, and reactive with water, see CLEAPSS Hazcard [HC059a](#).

Procedure



1. Set up the apparatus as shown.
2. Record the voltage.
3. Try all the combinations of metals.
4. Wash hands after handling lead.
5. Complete table.

Metals used	Which metal forms the positive terminal (+ve)	Which metal forms the negative terminal (-ve)	Voltage
Zinc and copper			
Copper and lead			
Lead and iron			
Zinc and lead			
Iron and magnesium			
Zinc and iron			
Zinc and magnesium			
Lead and magnesium			
Copper and magnesium			
Copper and iron			

Questions

1. Place zinc, magnesium, copper, lead, and iron in order of reactivity