

## Identifying electrodes

### Learning objectives

- 1 Name the positive and negative electrodes in an electrolytic cell.
- 2 Identify the positive and negative electrodes from diagrams showing the practical set-up.
- 3 Explain how to identify the positive and negative electrodes in a circuit diagram.

### Introduction

A common mistake when labelling electrolytic cell diagrams is memorising the position of the labels, rather than considering the terminals on the battery or powerpack.

In this activity you will need to carefully consider the diagrams to identify the positive and negative terminals and then the positive and negative electrodes.

### Questions

Look at the diagrams below and answer the questions.

1. Name the two electrodes.

\_\_\_\_\_ and \_\_\_\_\_

2. Draw a line from each statement to the type of ion it describes.

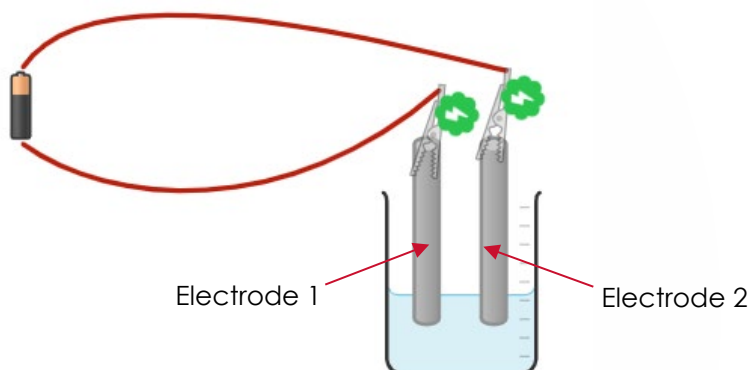
Anion

A positive ion, which has fewer electrons in its shells than protons in its nucleus.

Cation

A negative ion, which has more electrons in its shells than protons in its nucleus.

Diagram A



3. Which is the anode in diagram A? (Circle your answer)

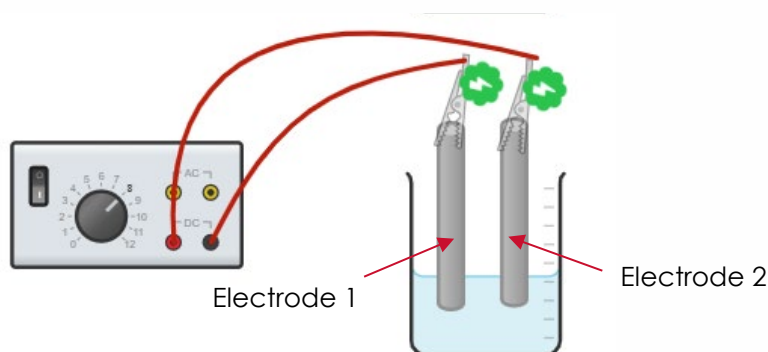
Electrode 1

Electrode 2

4. Which statement best explains this? (Tick the correct statement)

Answer to Q3	Explanation	✓
Electrode 1	Because it is connected to the + end of the cell; anode is the + electrode.	<input type="checkbox"/>
Electrode 1	Because it is connected to the - end of the cell; anode is the + electrode.	<input type="checkbox"/>
Electrode 2	Because it is connected to the + end of the cell; anode is the + electrode.	<input type="checkbox"/>
Electrode 2	Because it is connected to the + end of the cell; cations go to the cathode, anions go to the anode.	<input type="checkbox"/>

Diagram B



5. Which is the anode in diagram B? (Circle your answer)

Electrode 1

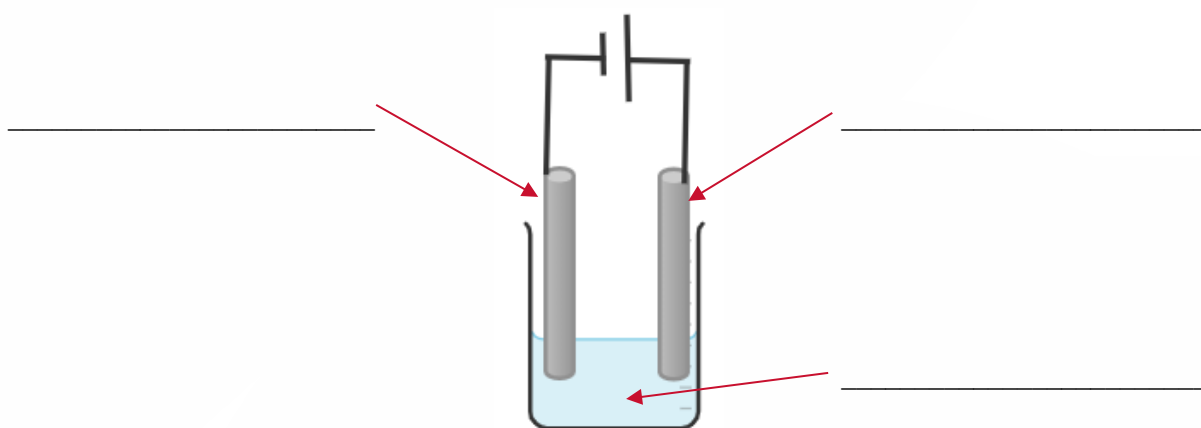
Electrode 2

6. Which is the best reasoning for this? (Tick the correct statement)

Answer to Q3	Explanation	✓
Electrode 1	Because it is connected to the + end of the powerpack; the positive terminal is red.	
Electrode 1	Because it is connected to the - end of the powerpack; the positive terminal is red.	
Electrode 2	Because it is connected to the + end of the powerpack; cathode is + electrode and anode is -.	
Electrode 2	Because it is connected to the + end of the powerpack; cations go to the cathode so the cathode is - electrode and anode is +.	

7. Label the Diagram C to show the anode, cathode and electrolyte.

Diagram C



8. Explain how you identified the anode and cathode.

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