

Introduction

This game could be used to revise simple electrical circuits. It is based on the game of boxes, where players take it in turn to join dots with lines and make boxes to score them points.

Rules

Provide pupils with copies of the sheet provided or ask them to create their own grids. They may join the dots with a wire, a bulb or a cell.

The intention is to complete a circuit and score points for a lit bulb. Each cell has an emf of 2V. The points for the bulbs are as follows:

Potential difference less than 1V = 0 points (i.e. it is too dim to see)

Potential difference 1V = 1 point (bulb is dim)

Potential difference 2V = 2 points (bulb normal brightness)

Potential difference 3V = 1 point (bulb bright, thus life limited, hence a lower score)

Potential difference greater than 3V = -1 points (bulb blows)

If a short circuit is completed (with wires and a cell but no bulbs) = -2 points

Safety

Not applicable.

More ideas

- For more able pupils you might increase the size of the grid or try the game and allow scores for parallel circuits.

Lesson outcomes

- Improved understanding of electricity circuits concepts

Where the activity fits in

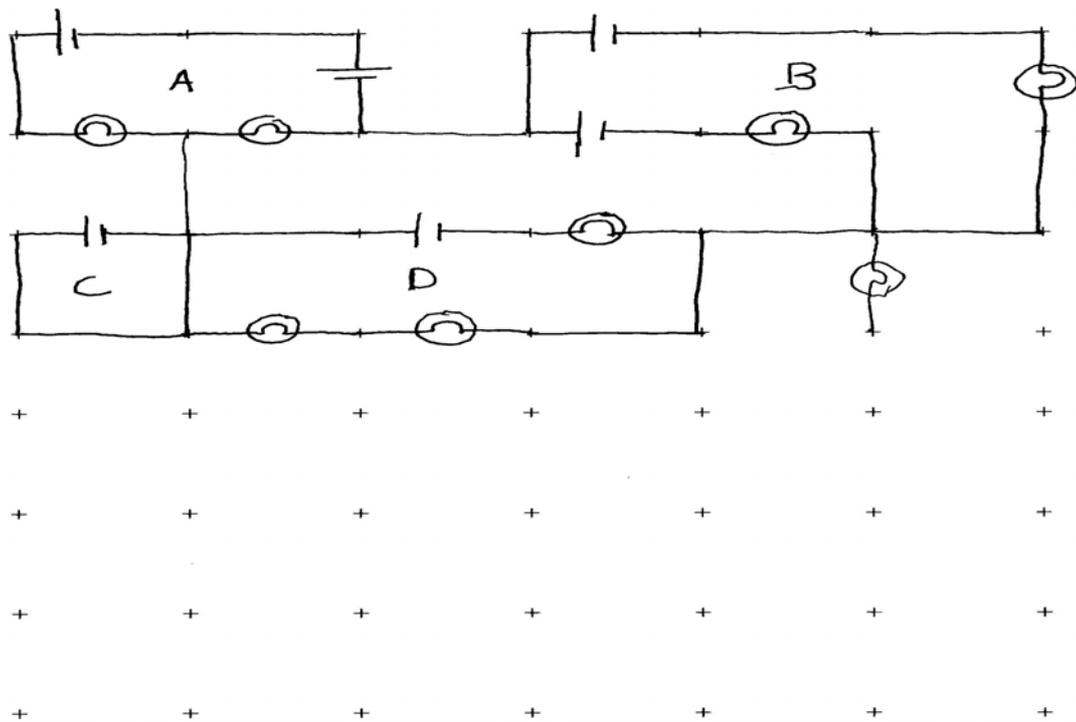
Any electricity topics.

Skills

Thinking skills, vocabulary.

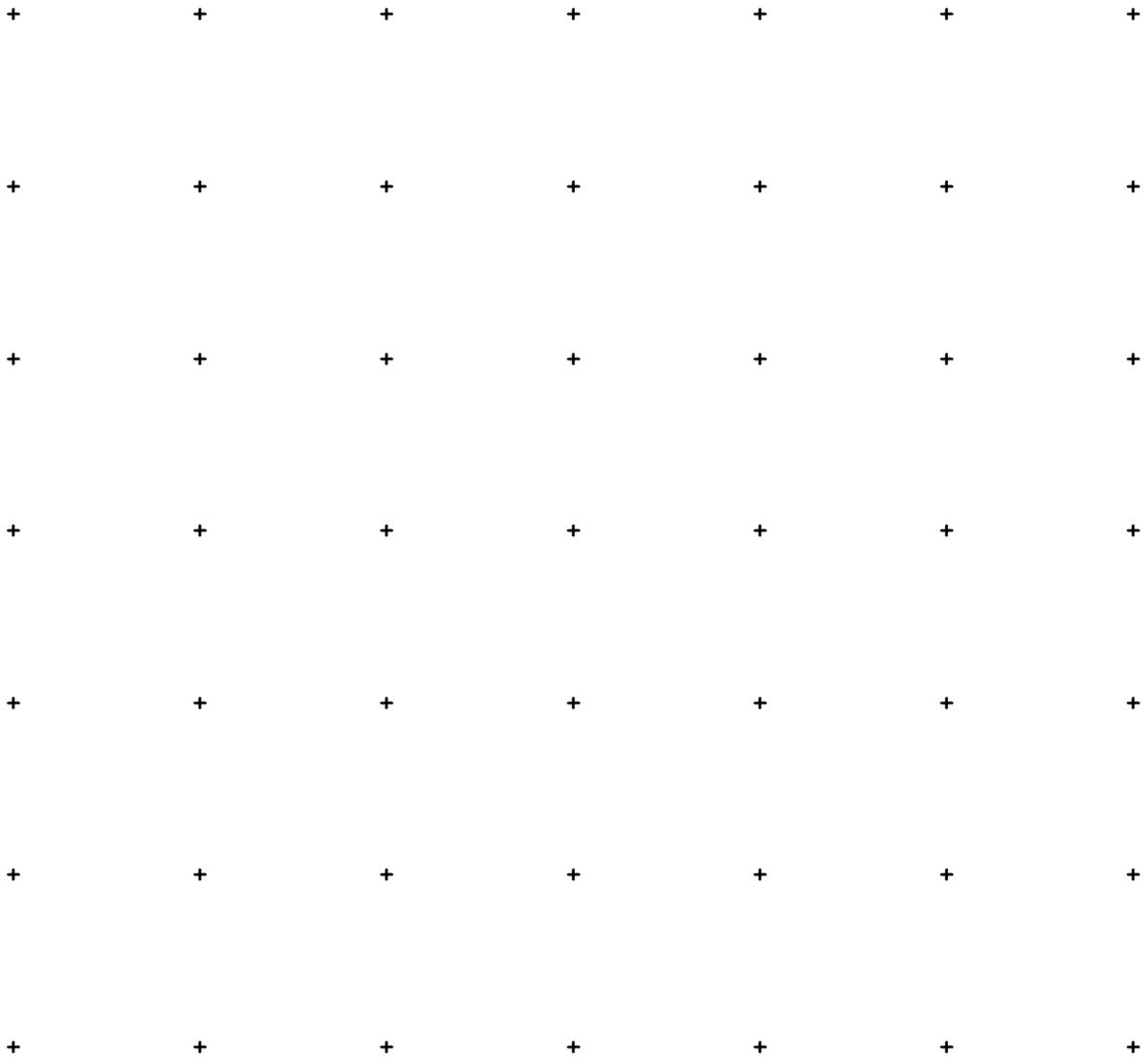
Acknowledgements

Written by Daniel Sandford Smith.



- The player who completed Circuit A scores 4 points (two cells gives total emf 4V, therefore two bulbs each with a potential difference of 2V across them).
- The player completing circuit B scores no point because the cells cancel each other out.
- The player completing circuit C scores -2 points since it is a short circuit.
- The player completing circuit D scores 0 points. One cell for three bulbs means each bulb has less than 1V across it so they are not lit.

Light a Bulb!



- Take it in turns to join two neighboring dots with a wire, a bulb or a cell.
- You score points for each bulb in any series circuit that you complete.
- The highest score wins, so watch out for the minus points!

Score	Points for <i>each</i> bulb in your completed series circuit where:
-2	Short circuit!
-1	PD across the bulb is greater than 3V
0	PD across the bulb is less than 1V
1	PD across the bulb is 1V
1	PD across the bulb is 3V
2	PD across the bulb is 2V