

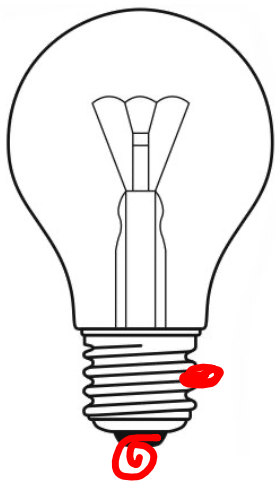
CONTENT: BIG IDEA:

The electromagnetic force produces both electricity and magnetism.

CURRICULAR COMPETENCIES

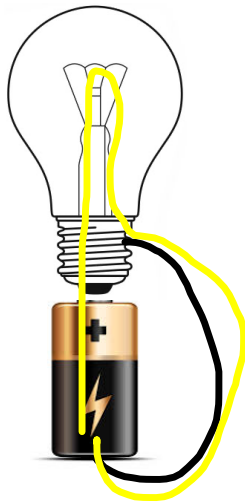
- Formulate hypothesis statements and draw conclusions
- Transfer and apply learning to new situations
- Generate ideas and solutions to problems
- Identify and control variables
- Work collaboratively and safely with other
- Clearly and accurately measures and records data
- Communicates learning using science language

## Challenge #1: Light the bulb



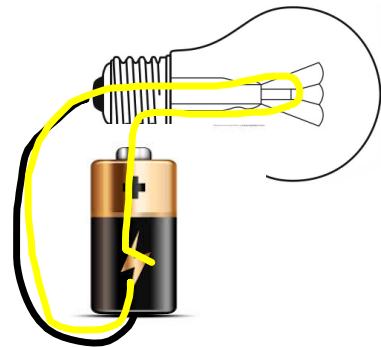
Key learning:

## Challenge 1: Light the



### Include:

- 2 ways that work
- 1 that does not (explain)



- Key learning:
- Electricity is the movement of electrons
  - Electrons must move in a continuous path (circuit) in order to light a bulb

Challenge #2: Make a complete circuit to light a bulb?

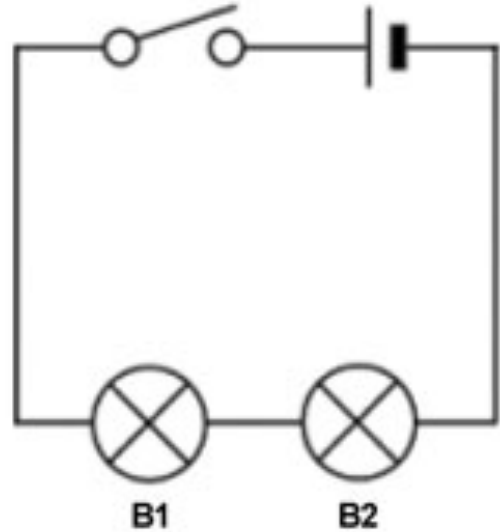


**Challenge #3 (optional)**

Make a Parallel circuit

(1 pathway) that lights up 2 bulbs?

What happens when you remove a light bulb? Explain.

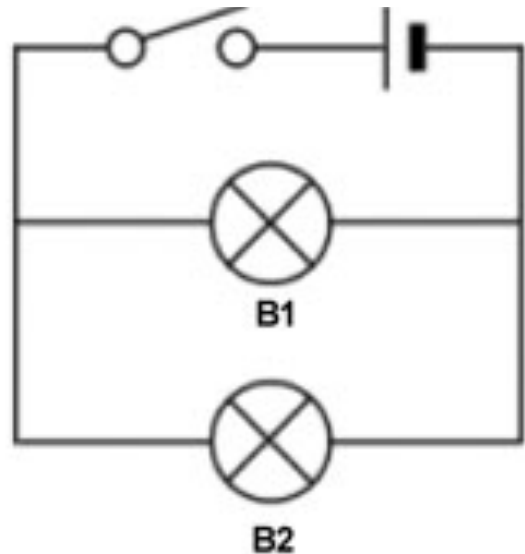


**Challenge #4 (optional):**

Make a series circuit

(more than 1 pathway) that

lights up 2 bulbs?



What happens when you add more bulbs? less bulbs? more batteries? less batteries?  
**You can make circuits with multiple pathways for electrons to flow.**

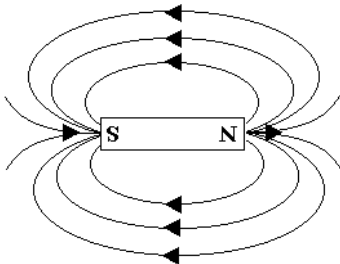
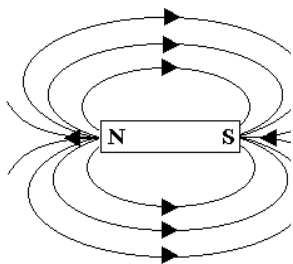
## Challenge # 5:

- push a magnet across the table without touching it
- pull a magnet across the table without touching it
- what other objects can you push or pull?

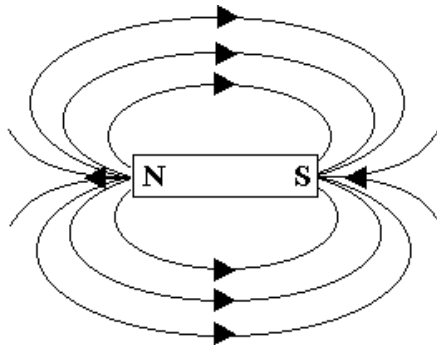
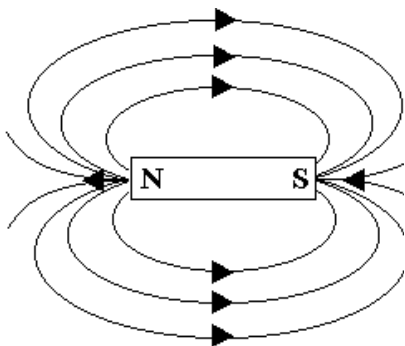


### Key Learning:

- magnets have an invisible force around them
- all materials have a magnetic field around them
- magnets have a north and south end
- opposites sides attract and like sides repel

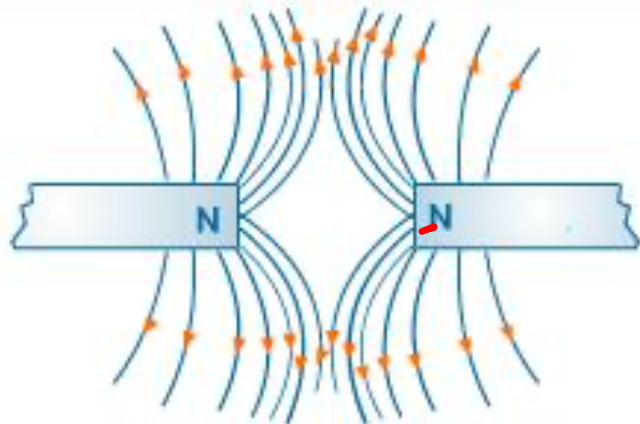


repel

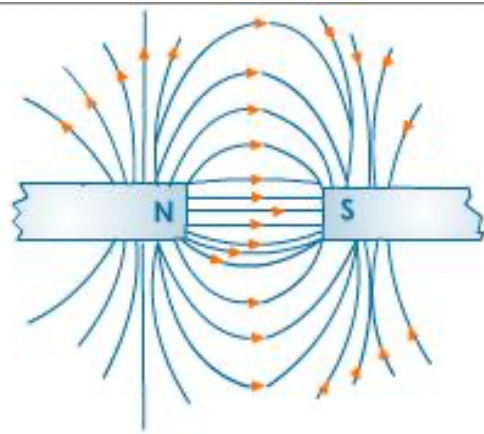


attract

(b)



(a)





Everything has a magnetic field!



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