

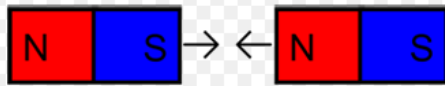
# Y8 - Knowledge organiser 8.8 – Magnets & Electromagnets



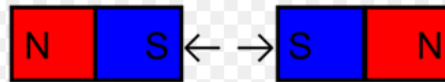
## Magnets

1

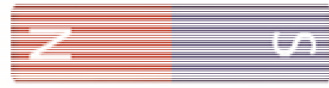
- A **non contact** force (**magnetism**) is experienced by metals close to a magnet.
- **Permanent magnet**: an object that is magnetic most of the time
- **Induced magnet**: a magnet that becomes magnetic inside a magnetic field.
- Magnets contain poles:



Opposite poles **attract**



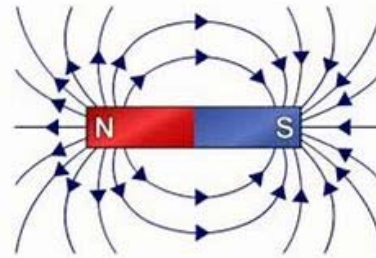
Same poles **repel**



## Magnetic fields

2

- The area around a magnet/ which experiences a force.

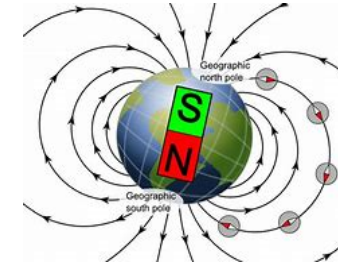


- The closer the lines, the stronger the force.

## Earth & Magnets

3

- The Earth has a magnetic core.



- **Compasses** point to magnetic North and are used for navigation.



## Electromagnets

4

- Current flowing through a wire causes a magnetic field.
- **Electromagnet**: a non-permanent magnet turned on and off by controlling the current through it.
- **Solenoid**: wire wound into a tight coil, part of an electromagnet
- **Core**: soft iron metal which the solenoid is wrapped around.



## Increasing the strength

5

- The strength of an electromagnet can be increased in the following ways:
- Increase the number of coils
- Increase the current
- Include a core in the electromagnet.

## Uses of electromagnets

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- Used in **loudspeakers and microphones** – where electrical energy is transferred into sound energy.
- **Electric bells**:

