

# CIE Physics GCSE

## Topic 4.1 - The simple phenomena of magnetism

### Flashcards

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# What is a magnetic field?



# What is a magnetic field?

A region where magnetic objects experience a force.



# Where is a magnetic field strongest?



Where is a magnetic field strongest?

At the poles of a magnet.



Magnetic field strength decreases as...



Magnetic field strength decreases as...

Distance from the magnet increases.



# Where does attraction occur?





Where does attraction occur?

Between opposite (unlike) poles of two magnets.



# Where does repulsion occur?



Where does repulsion occur?

Between like poles of two magnets.



Describe the key features of field lines in a magnetic diagram



Describe the key features of field lines in a magnetic diagram

- They have arrows pointing from north to south.
- The lines never touch, cross or overlap.



How is the strength of a magnet displayed in a diagram?



How is the strength of a magnet displayed in a diagram?

By the spacing of the field lines (the closer together they are, the stronger the magnet).



What do the arrows on field lines  
represent? (supplement)





What do the arrows on field lines represent?  
(supplement)

The direction of the force that would be experienced by the north pole of a magnet placed in the field.



# What is a permanent magnet?



# What is a permanent magnet?

An object which always has poles, and is therefore always magnetic.



# What is an induced magnet?



## What is an induced magnet?

A magnetic material which does not have fixed poles. They can be induced to become magnets (giving them poles) by placing them in a magnetic field, but they lose their magnetisation when the field is removed.



# What is a magnetic material?



# What is a magnetic material?

A material that is attracted to a magnet and can be magnetised.



Give examples of magnetic materials.





Give examples of magnetic materials.

Iron, steel, cobalt, nickel etc.



Describe how materials are magnetised.



Describe how materials are magnetised.

- Stroking them with a magnet
- Hammering them in a magnetic field
- Placing them in a coil with a direct current through it



Describe how materials are demagnetised (supplement)



# Describe how materials are demagnetised (supplement)

- Hammering
- Heating
- Placing in a coil with an AC wire



# What is a magnetically hard material?



# What is a magnetically hard material?

A material which can be permanently magnetised.



Give one example of a material that is magnetically hard.





Give one example of a material that is magnetically hard.

Steel



# What is a magnetically soft material?



# What is a magnetically soft material?

A material which is only temporarily magnetised (or does not hold its magnetism very well).



Give an example of a magnetically soft material.



Give an example of a magnetically soft material

Soft iron.



Give an example of where  
electromagnets are more useful than  
permanent magnets.



Give an example of where electromagnets are more useful than permanent magnets.

Magnets used for moving scrap metal; they can be turned off to drop the metal where it needs to be transported to.



Describe how magnetic field shapes can be investigated.





Describe how magnetic field shapes can be investigated.

Using plotting compasses arranged around a magnet; they will point towards the north pole, showing the direction of field lines.

