

# WJEC England GCSE Physics

## 8.3 - Induced Potential and Transformers

Flashcards



What happens when an electrical conductor moves relative to a magnetic field? (Higher)



What happens when an electrical conductor moves relative to a magnetic field? (**Higher**)

A potential difference is induced across the ends of the conductor.



What happens to an electrical conductor when there is a change to the magnetic field that it is placed in? **(Higher)**



What happens to an electrical conductor when there is a change to the magnetic field that it is placed in?

(Higher)

A potential difference is induced across the ends of the conductor.



What is the requirement for an induced potential difference to cause a current flow? **(Higher)**



What is the requirement for an induced potential difference to cause a current flow? (**Higher**)

The conductor must form a closed loop or part of a complete circuit.



What can be said about the direction of the magnetic field produced by an induced current? (Higher)





What can be said about the direction of the magnetic field produced by an induced current? (Higher)

- The direction of the field is such that it opposes the change that induced the current.
- This change is either the movement of the conductor or a change to the field.



How can the generator effect be used to  
generate different types of current?  
(Higher)



How can the generator effect be used to generate different types of current? (Higher)

- In an alternator (using a turbine) to produce alternating-current.
- In a dynamo to produce direct-current.



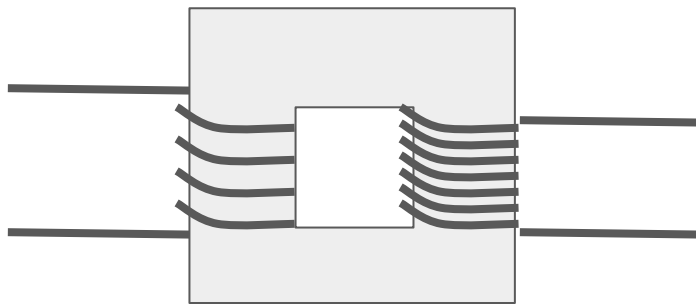
Describe the makeup of a basic transformer. (Higher)



Describe the makeup of a basic transformer.

(Higher)

A primary coil and a secondary coil of wire wrapped around an iron core.



Why is iron used as the core for a transformer? (Higher)



Why is iron used as the core for a transformer?  
(Higher)

It is easily magnetised.



Explain how a transformer works.  
(Higher)





Explain how a transformer works. (Higher)

- An alternating current flows through the primary coil.
- This induces a changing magnetic field in the core.
- This changing magnetic induces a p.d. in the secondary coil and causes current to flow.



Why must the current flowing through the primary coil of a transformer be alternating? (Higher)



Why must the current flowing through the primary coil of a transformer be alternating? (Higher)

- For current to be induced in the secondary coil, the magnetic field in the core must be continuously changing.
- For the magnetic field to be changing, the current in the primary coil must be alternating.



What can be said about the electrical power input and output of a 100% efficient transformer? (Higher)



What can be said about the electrical power input and output of a 100% efficient transformer? (**Higher**)

The power input is equal to the power output.



What is the significance of 100% efficient transformers? (Higher)



What is the significance of 100% efficient transformers? (Higher)

Power in primary coil = secondary coil

So primary current x primary p.d. =  
secondary current x secondary p.d.

$$I_p \times V_p = I_s \times V_s$$

