Edexcel GCSE Physics

Topic 12.1-12.6 - Magnetic Fields

Flashcards

At which part of a magnet are the magnetic forces strongest?

At which part of a magnet are the magnetic forces strongest?

The poles of the magnet.

What happens when two magnets are brought close to each other?

What happens when two magnets are brought close to each other?

They exert a force on each other.

What type of force is exerted if two like poles of a magnet are brought near each other?

What type of force is exerted if two like poles of a magnet are brought near each other?

A repulsive, non-contact force.

What type of force is exerted if two unlike poles of a magnet are brought near each other?

What type of force is exerted if two unlike poles of a magnet are brought near each other?

An attractive, non-contact force.

What is a magnetic field?

What is a magnetic field?

The region surrounding a magnet where another magnet or magnetic material experiences a non-contact force.

What is the difference between a permanent magnet and an induced magnet?

What is the difference between a permanent magnet and an induced magnet?

- A permanent magnet produces its own magnetic field
- An induced magnet becomes magnetic when placed in a magnetic field

Induced magnetism always causes what type of force?

What type of force does induced magnetism always cause?

A force of attraction.

What is the effect when an induced magnet is removed from a magnetic field?

What is the effect when an induced magnet is removed from a magnetic field?

The induced magnet loses most/all of its magnetism.

Give four examples of magnetic materials.

Give four examples of magnetic materials.

1. Iron
2. Steel
3. Cobalt
4. Nickel

What can always be said about the force between a magnet and a magnetic material?

What can always be said about the force between a magnet and a magnetic material?

It is always attractive.

How does the strength of a magnetic field alter as you move further away from the magnet producing it?

How does the strength of a magnetic field alter as you move further away from the magnet producing it?

The magnetic field strength decreases the further you move away.

In what direction does a magnetic field point?

In what direction does a magnetic field point?

- In the direction of the force that a north pole would experience if placed in the field
- From the north seeking pole to the south seeking pole of a magnet

What does a magnetic compass contain?

What does a magnetic compass contain?

A small bar magnet that points in the direction of the Earth's magnetic field.

What is produced when current flows through a conducting wire?

What is produced when current flows through a conducting wire?

A magnetic field is produced around the wire.

What determines the strength of the magnetic field around a current-carrying wire?

What determines the strength of the magnetic field around a current-carrying wire?

The magnitude of the current flowing through the wire.

Does a high concentration of field lines mean the field is strong or weak?

Does a high concentration of field lines mean the field is strong or weak?

Strong

True or false: magnetic field lines never cross each other?

True or false: magnetic field lines never cross each other?

True; they never cross, touch or overlap.

How is a plotting compass used to map out a magnetic field?

How is a plotting compass used to map out a magnetic field?

- Place a compass (containing a needle magnet) on a piece of paper near the field
- Draw an arrow in the direction the compass points
- Repeat at different points on the paper
- Join the arrows to make a complete field pattern

What is a solenoid?

What is a solenoid?

A coil of wire which when current passes through creates a strong magnetic field.

Describe the magnetic field found inside a solenoid.

Describe the magnetic field found inside a solenoid.

Strong and uniform.

Is the field on the **outside** of a solenoid strong or weak? Why?

Is the field on the **outside** of a solenoid strong or weak? And why?

Weak.

The fields from each coil cancel out, making the outside field weak.