

Magnetism

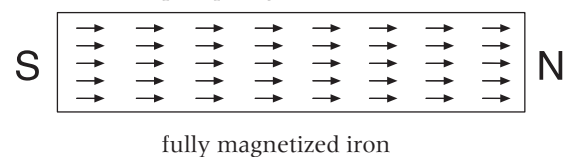
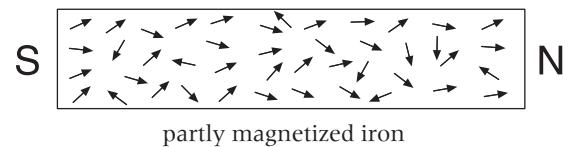
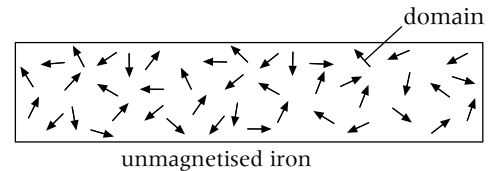
Magnetism is a property of the atoms in iron, nickel and cobalt. Little groups of atoms act like tiny magnets. Each little group of atoms is called a **domain**.

A normal piece of iron does not seem to be magnetic, because all the domains are magnetised in different directions. They cancel each other out.

When a piece of iron is magnetised all the domains line up. They do not cancel each other out any more.

Making magnets

You can magnetise a piece of iron by stroking it. You always have to stroke in the same direction so that all the domains line up. You can also magnetise a piece of iron by leaving it next to another magnet for a while. Eventually, the domains move around so they are lined up.



Removing magnetism

You can't stop a magnet being magnetic by cutting it up! If you break a magnet in two, the two halves would both be magnets, each with a north pole and a south pole. This is because all the domains are still lined up.

To destroy a magnet you have to get the domains to point in different directions. There are two ways of doing this.

- If you hammer a magnet, the vibrations let some of the atoms move around a little inside the metal. The domains can move around, and end up pointing in different directions.
- You can also remove magnetism by heating the magnet.



- 1 Which materials can magnets be made from?
- 2 What is special about the atoms in these materials?
- 3 What is a domain?
- 4 Why doesn't a normal piece of iron act like a magnet?
- 5 Describe two ways of making a magnet.
- 6 Can you ever have just a north pole of a magnet on its own? Explain your answer.
- 7 Explain why heating a magnet can remove its magnetism. (*Hint: You will need to think what happens to atoms in any solid material when the material is heated.*)
- 8 Why should you not drop magnets on the floor?



literacy, knowledge