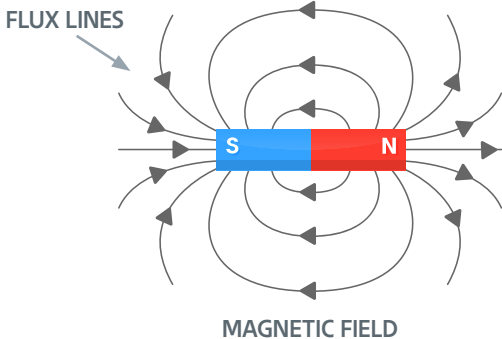


Magnetism

Magnetism and basic electricity are so closely related that one can not be studied at length without involving the other. There are three general relationships that exist between them:

- Current flow will always produce some form of magnetism
- Magnetism is by far the most commonly used means for producing or using electricity
- The peculiar behavior of electricity under certain conditions is caused by magnetic influences

Magnet



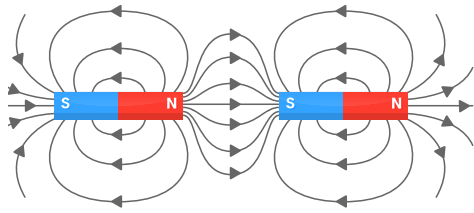
Common properties

- They attract and hold iron
- They all have two poles, one north and one south
- They will assume close to a north-south alignment, if permitted to move

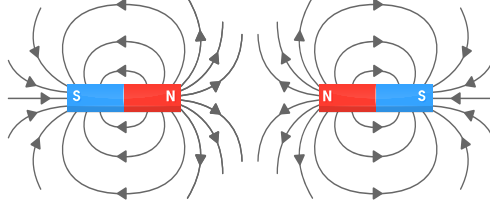
Every magnet is surrounded by a magnetic field that consists of flux lines or lines of force.

North and South Poles

UNLIKE POLES ATTRACT



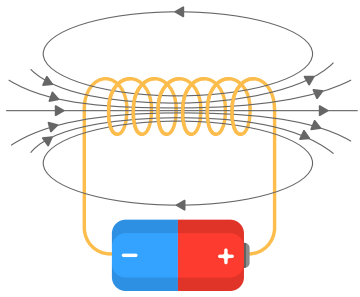
LIKE POLES REPEL



The north and south poles attract one another because the poles are opposites. It also holds true that two like poles repel one another.

Magnets exist only in the form of dipoles with a north and a south pole. When a magnet is split into two pieces, you don't get a separate north pole and a south pole. Rather you get two new, smaller magnets, each with a north and south pole.

Electromagnets



The interaction of electric current and a magnetic field creates electromagnetism. Electromagnets are similar to permanent magnets, except they do not retain their magnetism when the electricity is removed, and they can be made stronger.

To make a typical electromagnet, take an iron rod and wrap it with insulated wire. The iron rod is called a "core". When the wire is connected to a battery, electric current flows through the wire. This current magnetizes the iron core. This creates a north and south pole. When one or both ends of the wire at the battery are disconnected, the current flow stops. The core loses its magnetism.