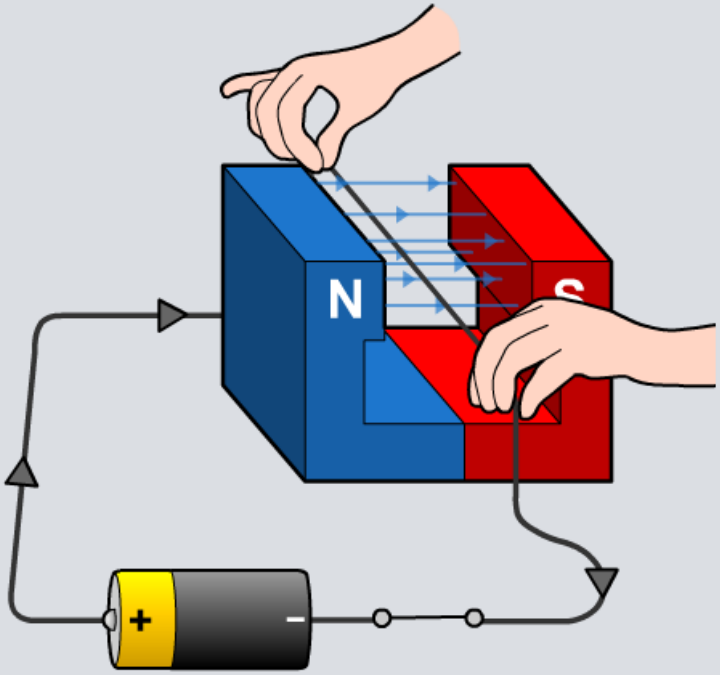
Magnetism, Current and Force

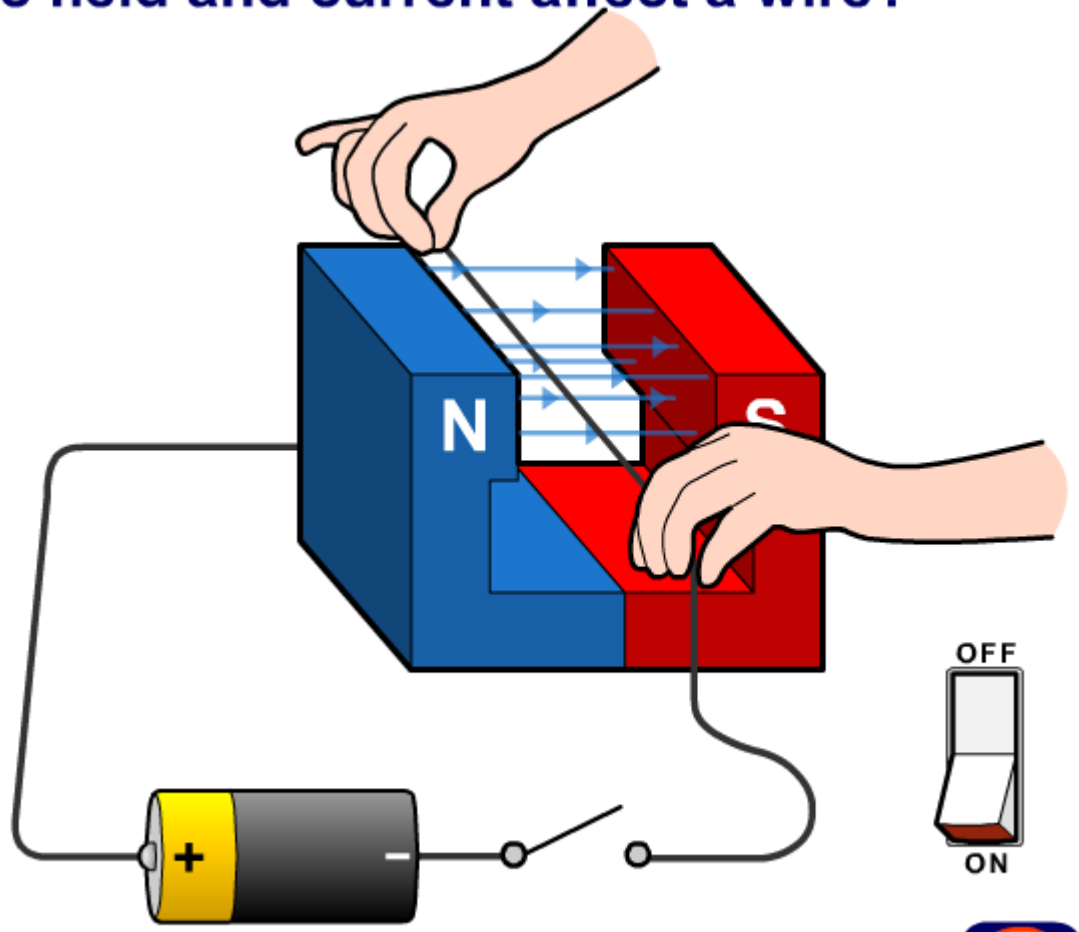


Wire in a magnetic field

How do a magnetic field and current affect a wire?

What will happen when current flows through a wire held perpendicular to a magnetic field?

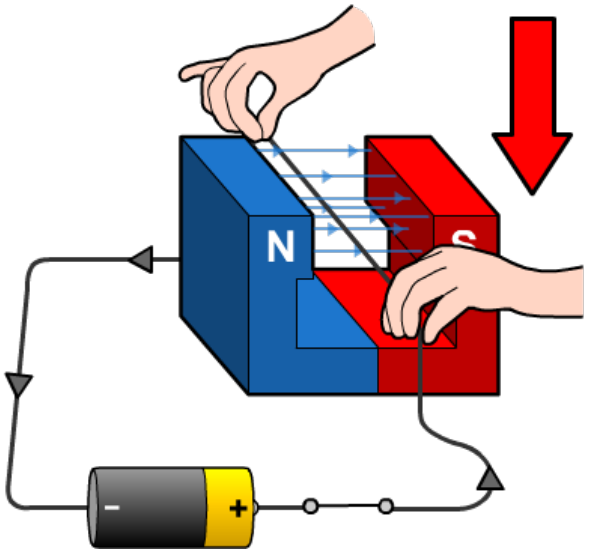
Click the switch to find out.

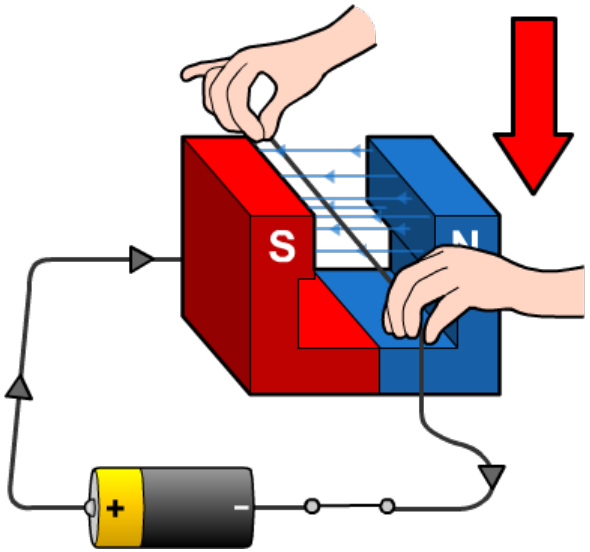


Changing the direction of the force

The direction of the force acting on a wire in an electromagnetic field can be reversed by:

- reversing the current
- reversing the magnetic field

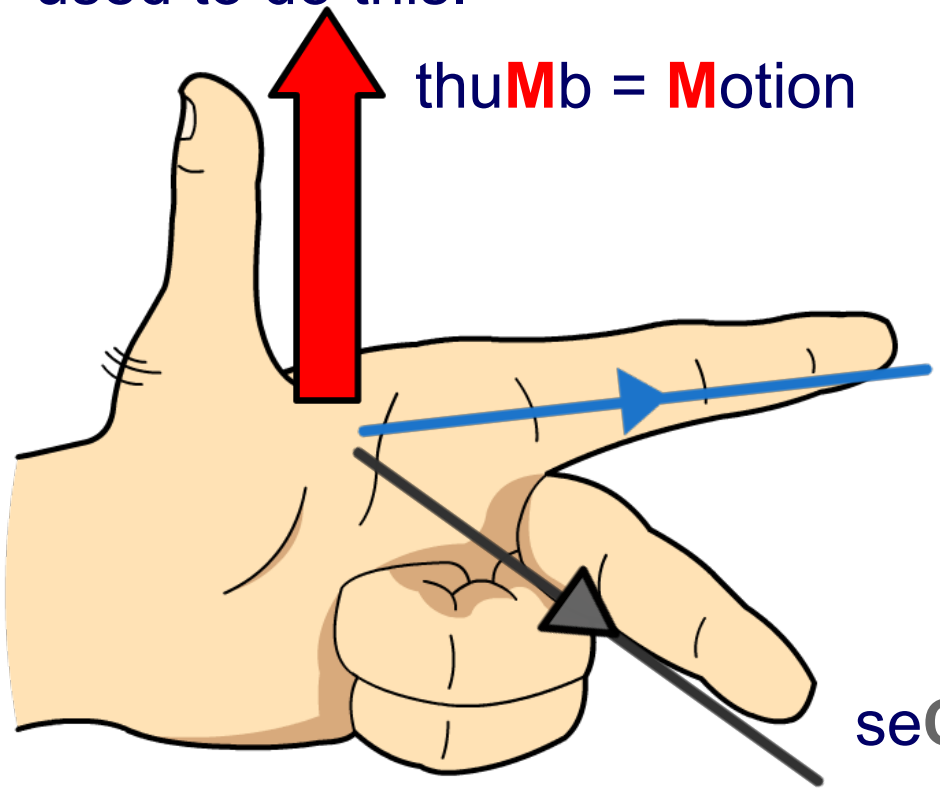




The direction of the force is, therefore, relative to both the direction of the magnetic field and the current.

Fleming's left-hand rule

It is possible to predict the direction of the force acting on a wire (its motion) if the direction of the current or the magnetic field are known. **Fleming's left-hand rule** is used to do this.



thuMb = Motion

First finger = magnetic Field

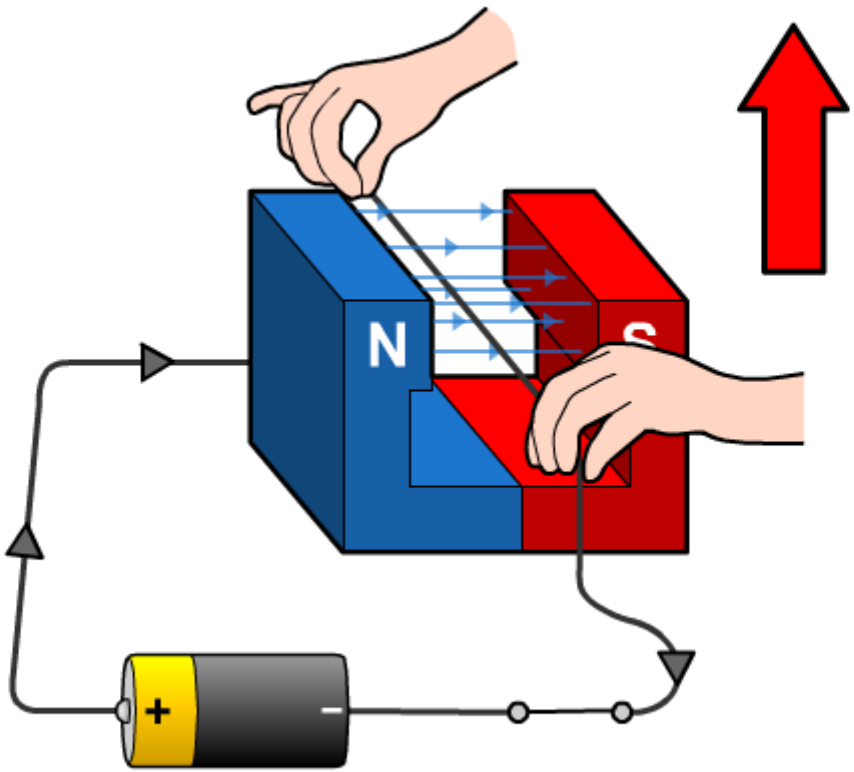
seCond finger = Current

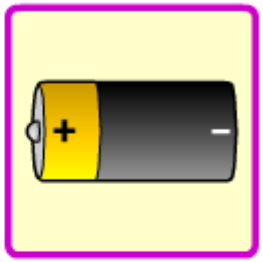
Increasing the size of the force

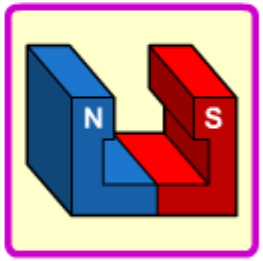
How can the size of the force be increased?

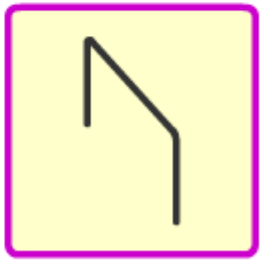
The size of the force acting on a wire depends on **three factors**.

Click the buttons on the right to find out more.









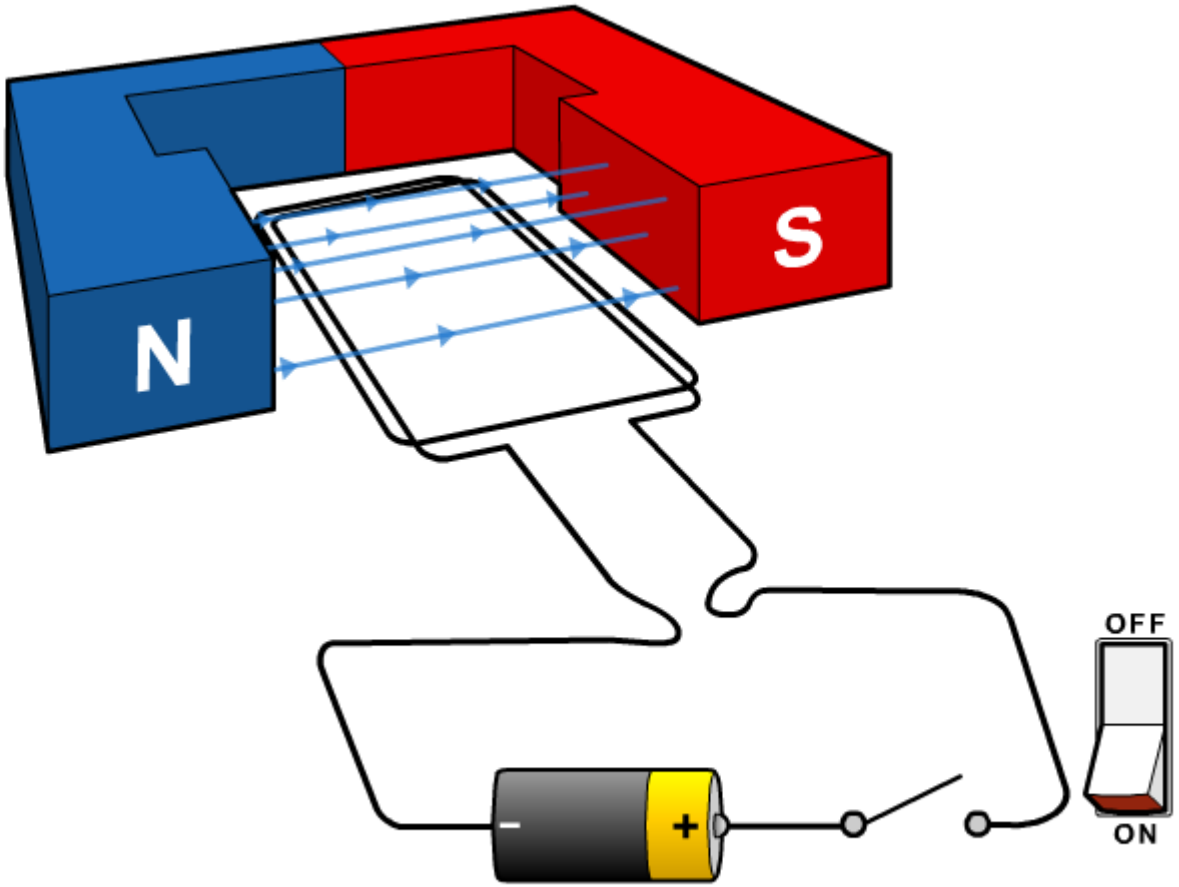
Coil in a magnetic field

How do a magnetic field and current affect a coil of wire?

A single wire moves in a magnetic field when a current runs through it.

What will happen to a coil of wire in a magnetic field?

Click the switch to find out more.



The motor effect: true or false?

Are these statements about the motor effect true or false?

1.	A current-carrying wire held parallel to a magnetic field will experience a force.	
2.	Reversing the current reverses the direction of the force.	
3.	Reversing the magnetic field has no effect on the direction of the force.	
4.	You only need to know the direction of the current to predict the direction of the force.	
5.	Increasing the strength of the magnet or the current will increase the size of the force.	
6.	The length of wire in a magnetic field has no effect on the size of the force.	

true false

?

solve