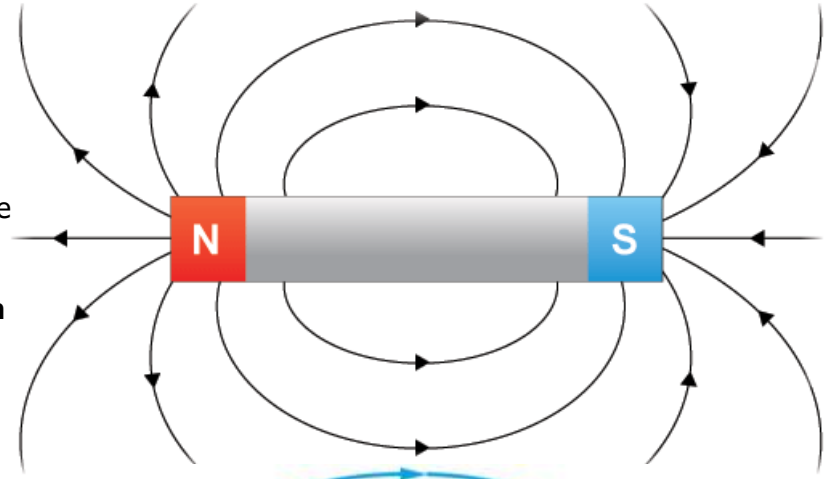
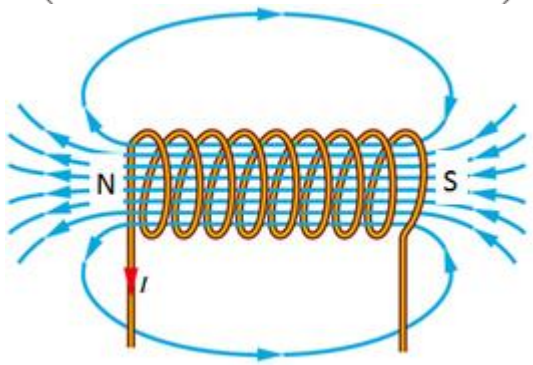
Physics 7: Magnetism and Electromagnetism

Section 1: Magnetism Key Terms	
1 Pole	The **places** on a magnet where the **magnetic forces** are **strongest**.
2 Magnetic Field	The **area** around a magnet where a **force acts** on another magnet or magnetic material.
2 Repel	Occurs when two **like poles** are brought close together. The magnets **push apart**.
3 Attract	Occurs when two **opposite poles** are brought close together. The magnets **move together**.
4 Permanent magnet	A magnet that produces its **own magnetic field**.
5 Induced magnet	A magnetic material that **becomes a magnet** when it is placed in a **magnetic field**. When **removed** from the **field** it **quickly loses its magnetism**.
6 Magnetic material	There are four magnetic materials: **iron**, **steel**, **cobalt** and **nickel**.
7 Compass	Compasses contain small bar magnets which **points** to the **north pole** of the **Earth's magnetic field**.

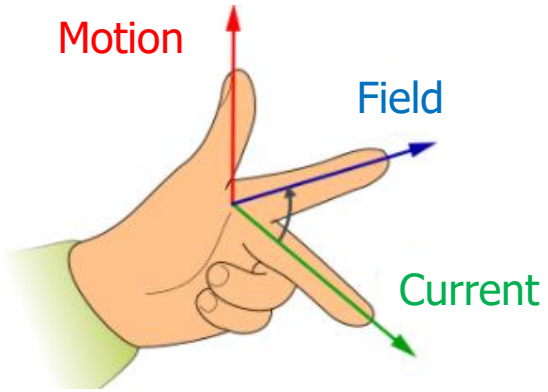
8 The magnetic field around a bar magnet. The **field lines** always go **from North to South**



9 The magnetic field in a **solenoid** is concentrated **inside the coil in a uniform direction**, otherwise it acts in the same way as a bar magnet.

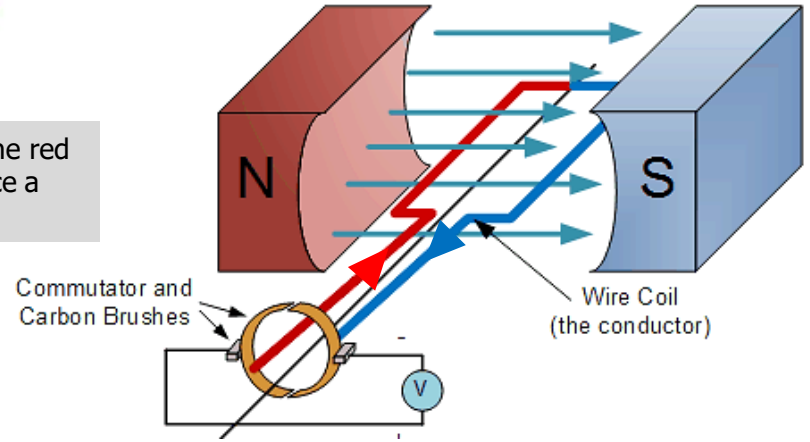


Section 2: Electromagnetism Key Terms	
10 Solenoid	A **coil of wire** that will create a **magnetic field** when **current** is passed through it. The magnetic field **inside** the solenoid is **strong** and **uniform**. It acts in the same way as a bar magnet.
11 Electromagnet	A **solenoid containing an iron core** which increases its strength.
12 Motor effect (HT)	When a **conductor carrying a current is placed in a magnetic field**, **the magnet producing the field and the conductor exert a force on each other**. This can be used to create a motor.
14 Fleming's Left Hand Rule (HT)	A rule that shows the **relative direction** of the **current**, **force** and **magnetic field** in the motor effect.



15 (HT) Fleming's Left Hand Rule. Align fingers to the field and the direction of the current to work out the way the wire moves.

16 (HT) A motor. In this case the red part of the wire would experience a force upwards.



Section 3: Increasing the force of…	
17 A Solenoid	**18 A Motor (HT)**
Add an **iron core**	Increase the **number of coils** of wire
Increase the **number of coils** of wire	Increase the **strength of the magnetic field**
Increase the **current**	Increase the **current**
Move the magnetic material/ magnet **closer** to the solenoid	