



**Topic: Forces at a distance**

**Date covered:** 9/01/18 – 16/02/18

**Key words:**

Contact  
newton  
Gravity  
Weight  
Mass  
Kilogram  
Magnet  
Magnetic  
Field  
Positive  
Negative  
Neutral  
Electric  
Charge

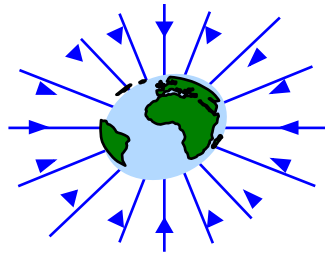
**Key facts:**

- Gravity is responsible for our weight.
- Weight is a force that changes depending on the gravitational field strength.
- Weight is measured in newton's (N).
- Mass is a measurement of the matter we are made up of.
- Mass is measured in kg.
- Mass is the same no matter where in the universe you travel.
- Weight = mass x gravitational field strength
- Bar magnets are permanent magnets.
- Electromagnets are temporary magnets (They can be switched on and off).
- The strongest part of a magnet is the poles.
- Magnets have two poles, north and south.
- Like poles (e.g. north and north) repel.
- Unlike poles (e.g. north and south) attract.
- Magnets attract magnetic materials these are: Iron, Cobalt, Nickel and Steel.
- The strength of an electromagnet can be increased by increasing the current or the number of turns.
- Electric charges can be positive or negative.
- Electrons are negatively charged.
- Static electricity is caused by two **insulators** rubbing together. This causes electrons to move from one to the other. The build-up of electrons is known as static charge.
- Insulators do not conduct electricity.
- Field lines show the area where the force acts.
- When field lines are closer together the field is stronger.
- Magnetic field lines always point north to south.
- Gravitational field lines always point towards the object with mass.

- Electric field lines always point towards the positive charge.

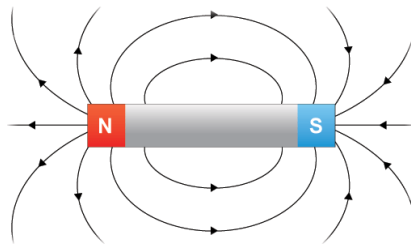
**Key diagrams:**

Gravitational fields:

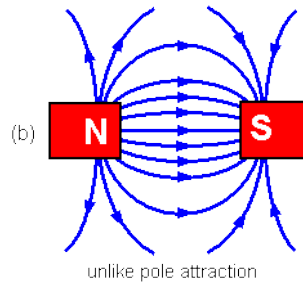


Magnetic fields:

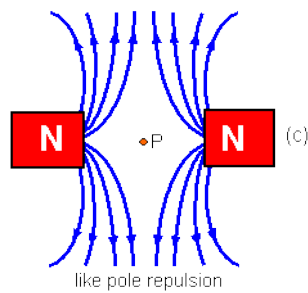
**Bar magnet**



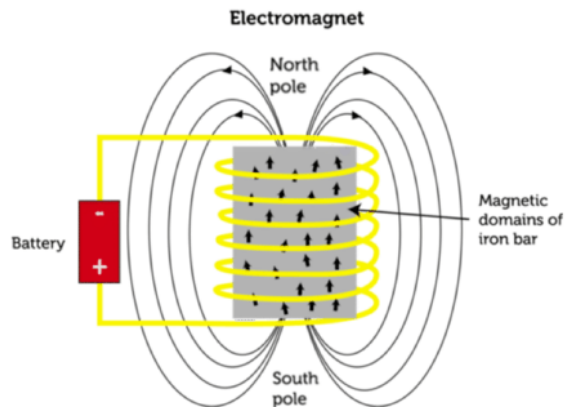
**Bar magnets attracting**



**Bar magnets repelling**

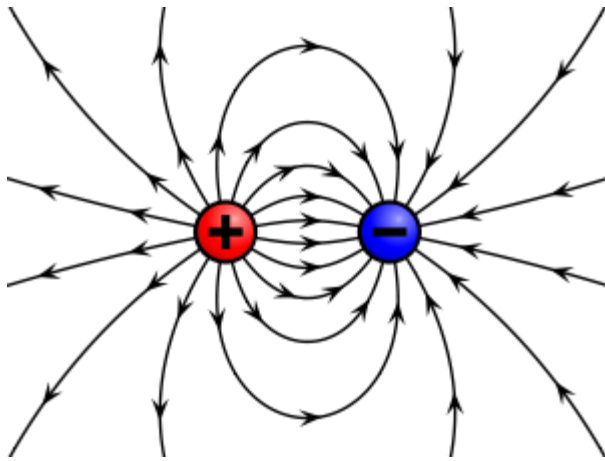
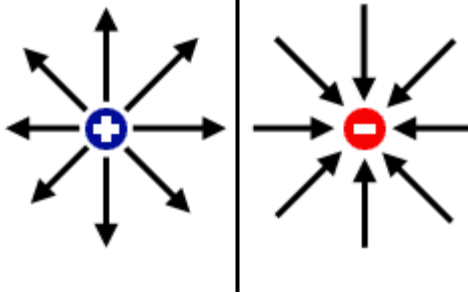


**Electromagnet**



Fields around charges:

ELECTRIC FIELDS



Additional information: