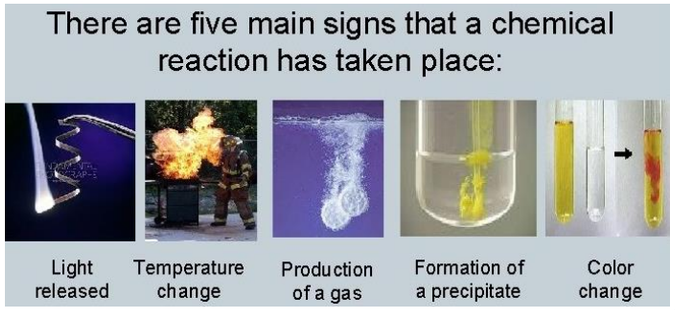
Year 8 Science: Term 3
Changing Substances and Magnetism

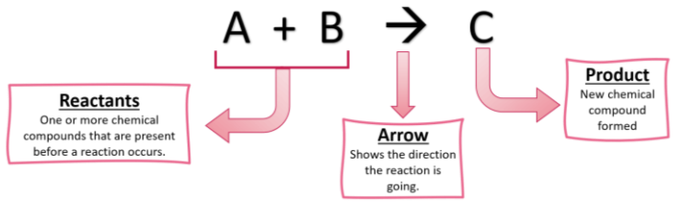
Week 1

Big Picture: Changing Substances

A chemical reaction is where you combine two or more substances to make something new. The signs of a chemical reaction are:

- Change in temperature
- Change in colour
- A gas is produced (effervescence)





Week 2

Big Picture: Changing Substances

If you put a beaker of hydrochloric acid on a balance with some magnesium ribbon in it. The mass will go down.
Mass is the number of particles something is made from. You aren't destroying the particles. What is happening is that some of those particles are being given off as a gas.
So some of the mass (particles) moves in the surrounding areas.
This is known as the conservation of mass. Particles are not created or destroyed, their location is just changed.
In a chemical reaction mass is always conserved

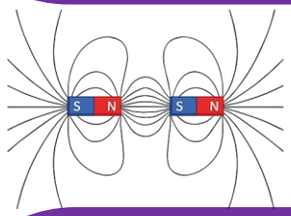
Week 3

Big Picture: Changing Substances

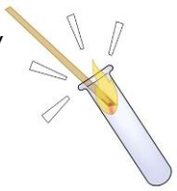
Acids react with most metals.
When an acid reacts with a metal, the products are a salt and hydrogen.
This is the general word equation for the reaction:
metal + acid → salt + hydrogen

•A salt made from hydro*chlor*ic acid will end in **chloride**
•A salt made from *nitr*ic acid will end in **nitrate**
•A salt made from *sulf*uric acid will end in **sulfate**
For example:
Sodium + sulfuric Acid → Sodium Sulfate + Hydrogen

metal + acid → metal salt + hydrogen



Squeeky pop test



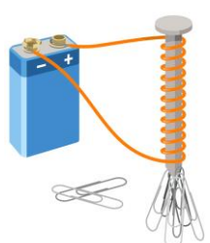
Week 4

Big Picture: Electromagnets

An electromagnet is made by wrapping insulated wire around an iron core. You then connect the wire to a power supply. This is now an electromagnet.

An advantage of an electromagnet is that you can increase the strength by either increasing the current or increasing the number of time the wire is wrapped around the core.

Another advantage is that you canturn an electromagnet off.

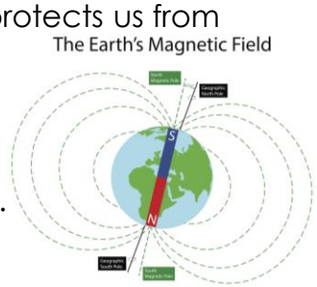


Week 5

Big Picture: Electromagnets

The Earth has a solid core containing iron. This create a magnetic field around the Earth. When you use a compass, it points to the magnetic south pole of this field.

The Earths magnetic field protects us from particles spewed out from the sun. Without the Earths magnetic field these particles would hit the Earth making life impossible. This is what causes the northern lights.



Key words:

Base - A substance which has a pH value of greater than 7 and can neutralise an acid.

Combustion - A high temperature reaction with oxygen (burning)

Neutralisation - A chemical reaction that occurs when an alkali reacts with an acid.

Coil - A length of wire wrapped to form a spiral.

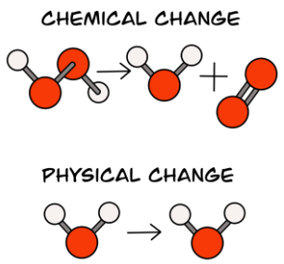
Electromagnet - A solenoid (coil of wire) with a current flowing through it, containing an iron core.

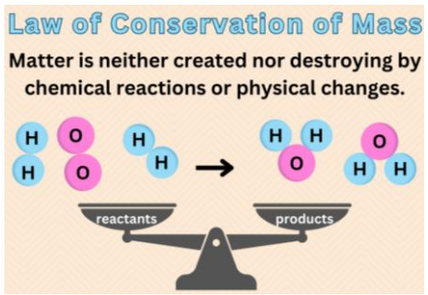
Non Contact Force - A force that does not require objects to be directly touching in order to have an effect.

Year 8 Science: Term 3
Changing Substances and Magnetism

Week 1

Questions	Answers
Mixing iron and sand isn't a chemical reaction, Why?	Iron an sand is a mixture, it can be separated no bonds are formed.
Define an exothermic reaction	An exothermic reaction is when heat is given off.
What is a chemical reaction?	A change in atoms are rearranged to make new substances
What 5 things are signs a chemical reaction is happening?	Light produced Temperature change A gas is produced A precipitate (solid) is formed A colour change



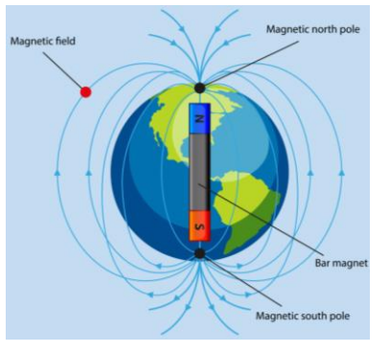


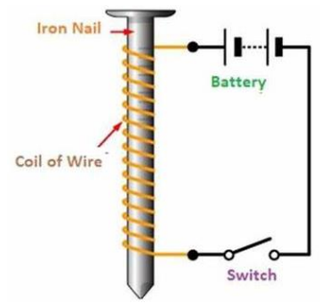
Week 2

Questions	Answers
What is mass?	Mass is the number of particles you have
Why in a chemical reaction does the mass appear to decrease?	Some of the particles are being given of as a gas
What will happen to the mass if there isn't a chemical reaction happening?	Nothing as no gas will be produced
Describe the conservation of mass	During a chemical reaction the total mass never changes. The location of the particles change.
What can be used to measure mass?	A balance

Week 3

Questions	Answers
What is a salt?	A salt if formed when an acid and a metal react together
If a sulfate is produced what acid was used?	Sulfuric Acid
Lithium + Nitric Acid →	Lithium Nitrate + Hydrogen
How will you know if an acid and metal are reacting	A gas is produced There will be a temperature change A colour change





Week 4

Questions	Answers
Name the two pole of a bar magnet	North and south poles
Why does the needle of a compass always point in the same direction?	The compass needle is attracted to the Earth's North pole
What type of material can you use for an electromagnet core?	Magnetic material – usually iron
State 3 things that affect the strength of an electromagnet	Type of core The amount of current Number of coils of wire
What is the advantage(s) of an electromagnet	You can turn an electromagnet off and change its strength.

Week 5

Questions	Answers
What causes the Earths magnetic field?	The Earths magnetic field is caused by the solid Iron core at the centre of the planet.
What pole does a compass point to?	Magnetic south pole
How does the Earths magnetic field protect us?	It stops charged particles from the sun reaching the Earths surface?
When will the northern lights be most visible?	When the sun gives out lots of charged particles
How does this field show the core is solid?	If the core was liquid the field would move.

Key words:

Base - A substance which has a pH value of greater than 7 and can neutralise an acid.

Combustion - A high temperature reaction with oxygen (burning)

Neutralisation - A chemical reaction that occurs when an alkali reacts with an acid.

Coil - A length of wire wrapped to form a spiral.

Electromagnet - A solenoid (coil of wire) with a current flowing through it, containing an iron core.

Non Contact Force - A force that does not require objects to be directly touching in order to have an effect.