Yr 7 Science C1.3

Section 1 - Chemical reactions

A chemical reaction takes place when atoms are rearranged to produce new substances.

All chemical reactions make new substances and transfer energy to or from their surroundings.

Most chemical reactions are not easily reversible.

Catalysts can be used to speed up or slow down chemical reactions.

Section 2 - Signs of chemical reactions

Signs of a chemical reaction:

- Sparks
- Flames
- Smell
- Bang
- Fizzing
- Getting hot
- Getting cold

Section 3 - Word equations

Word equations represent reactions in a simple way.

A word equation shows:

- reactants on the left
- products on the right.

The arrow means *reacts to make*. It is different to an equals sign (=) in a maths equation.

The word equation for the reaction of iron and sulfur is:

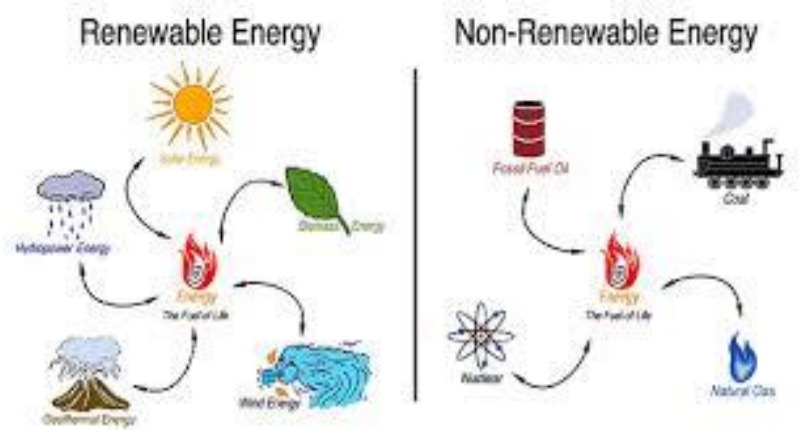
iron + sulfur → iron sulphide

Section 4 - Fuels

A fuel is a material that burns to transfer energy by heating.
Burning is a type of chemical reaction and is also called **combustion**.
Combustion reactions always have the same general reactants and products:

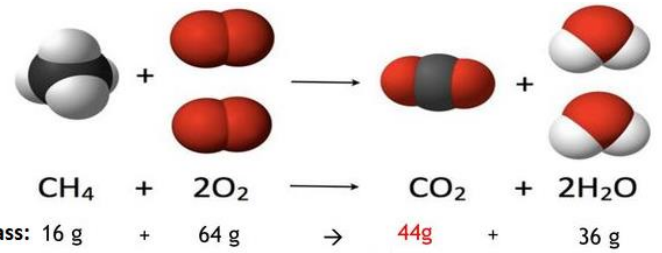
Fuel + Oxygen → Carbon dioxide + Water

This can also be described as an **oxidation** reaction because the fuel is reacting with oxygen.
There are 2 types of fuel; renewable and non-renewable.



Section 5 - Reactions

In a chemical reaction the total mass of the products is equal to the total mass of the products. This is called **conservation of mass**.



In some reactions there is only one reactant and it breaks down into to a simpler compound or element. This is called **decomposition**. Often heat is applied to cause the reactant to break down. This is called **thermal decomposition**.

If a chemical reaction takes in energy from its surrounding (feels cold) it is **endothermic**.
If a chemical reaction transfers energy to its surroundings (feels hot) it is **exothermic**.

Section 6 - Rules for balancing equations

A balanced equation means there are the same number of atoms on both sides of the equation.

You are not allowed to change the formula of any chemical.

To balance the equation you can only add a number IN FRONT of a chemical.