Chemistry C6
The rate and extent of chemical change

Rate of reaction
Reactions can be fast or reactions can be slow

What is reaction rate
Reaction rate tells how fast a reaction happens

we can measure it by

- how fast the reactants are used up
- how fast products are formed

Formula of rate of reaction is
Rate of reaction= amount of reactant used up or product formed / time

How to measure reaction rates

Precipitation method
It works when two clear solution mix to make solid and the solution is like cloudy

Steps are

- makes the two solutions
- place the container over a mark paper
- observe how long it takes for mark to disappear
- faster disappearance means faster reaction

Disadvantages

- different people might not agree exactly win the mark disappear

Changes in mass

- It works when the reaction produces a gas
- put the reaction on a mass balance
- as the gas is released match decreases
- faster decrease means faster reaction
- the reaction finish is win the match top changing
- you can plot a graph mass versus time

Different speeds of reaction

- Very slow, rusting of iron
- Slow chemical weathering like acid rain damaging limestone
- medium speed reaction is magnesium metal reacts with acid and it will make gentle bubbles
- fast reaction is burning
- very fast reaction is explosions they happened in a fraction of second and it they make a lot of gas

Why Reactions happen

Collision theory

- Particles must collide to react
- rate of reaction depends upon the collision frequency and energy of collision
- frequency means how often particles collide
- More collision means faster reaction
- energy of collision they must have enough energy to react

Things that affect the rate of reaction

1. Temperature
2. Concentration
3. surface area
4. catalyst

Temperature

- higher the temperature particle will move faster there will be more collision and the particles collide with more energy and the reaction becomes faster

Concentration of pressure

- Higher concentration means more particles in same space so there will be more collision
- so rate of reaction is high if the concentration is high
- higher pressure gas pressure there will be more and the rate of reaction is high

Surface area

big pieces of solids means more surface area and more collinear with particles around and their will be faster rate of reaction

Catalyst

A catalyst speed up the rate of reaction but it is not used up