Chemistry

Rate of reaction

- Rate of reaction means how fast the reactants turn into products
- Reactants means when two things react together like milk and chocolate
- Milk and chocolate are reactants
- When You Mix milk and chocolate so chocolate milk is formed
- Milk + Chocolate = Chocolate milk
- In industries faster reactions make more Chemicals faster which means more money

Different speeds of the reaction

- Very slow , Resting of iron
- Slow, Chemical weathering like acid rain damaging limestone
- medium speed , Magnesium metal reacts with acid and it will make gentle bubbles
- Fast , burning
- Very fast , explosionsThey happened in a fraction of second and 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 the collision
- Collision frequency means how often particles collide
- More collisions means faster reaction
- Energy of collision they must have enough energy to react

Activation energy

Minimum energy required to start a reaction is called activation energy

Anything that makes more collision increases the reaction speed

Things that affect the rate of reactions

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

Temperature

Higher the temperature, particles will move faster there will be more collision and the particles collide with more energy and the reaction becomes faster

Concentration or 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 gas pressure there will be more collision and the rate of reaction is high**

Surface area

smaller pieces of solid means more surface area and more collisions with particles around and there will be faster rate of reaction

Catalyst

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

How catalyst speed up the rate of reaction

It lowers the activation energy and makes the reaction easier

Enzymes are the catalyst in living things