

Quick Review:

Reactants → Products

Reactants get used up in a reaction

Products are what gets made in a reaction

Reaction Rates

- Rate means how fast the reaction is happening

How to speed up a reaction

- Increase reactant concentration (amount in a certain volume)
- Increase temperature
- Add a catalyst
- Increase surface area of the reactants
- Mix / stir more

Collision Theory of Reactions

Reactant molecules must collide for a reaction to happen.
They also need to collide with a certain amount of energy.

Higher reactant concentration: more collisions

Higher temperature: faster molecules → more collisions

higher energy molecules → higher energy collisions

More Surface Area → more collisions

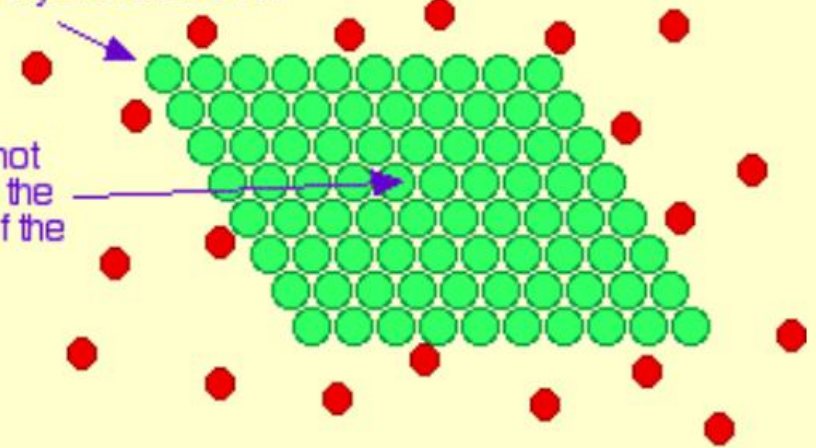
Add Catalyst → collisions require less energy

Mixing → more collisions

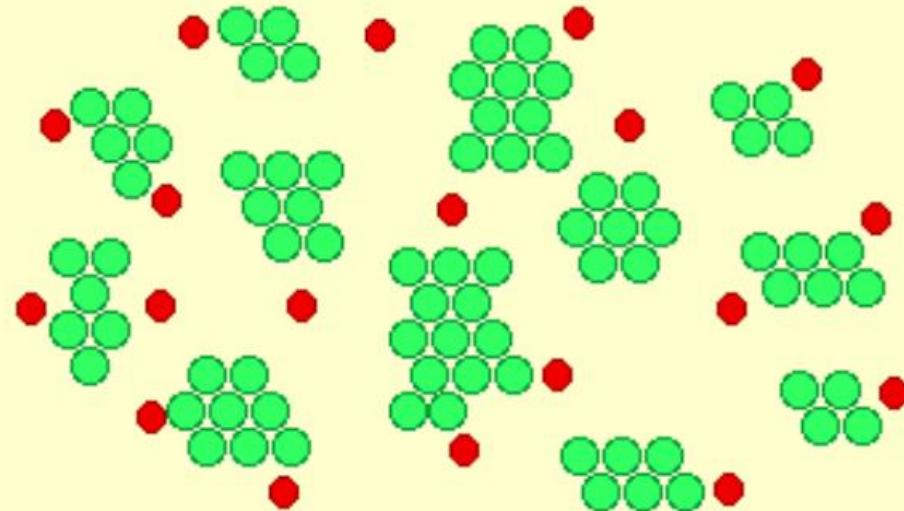
Surface Area

Hydrogen ions can hit the outer layer of atoms ...

... but not these in the centre of the lump.



With the same number of atoms now split into lots of smaller bits, there are hardly any magnesium atoms which the hydrogen ions can't get at.



Catalyst

- Creates a new reaction pathway
- Lower activation energy
- Now a higher percentage of collisions are successful reactions

