

Section 1- Rate of reaction

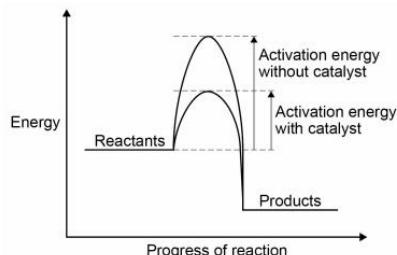
Phrase		Definition
1a	Rate of reaction	The time it takes for a chemical reaction to take place.
1b	Measuring rate	Rate can be calculated by measuring the mass or volume of product formed over time. It can also be calculated as the mass or volume of reactant used up over time.
1c	Collision theory	The idea that reactions can only occur when molecules collide into each other with enough energy.
1d	Activation energy	The minimum energy that a collision must have for it to cause a reaction to take place. Different reactions have different activation energies.

1c. Collision theory states that molecules must collide with enough energy.

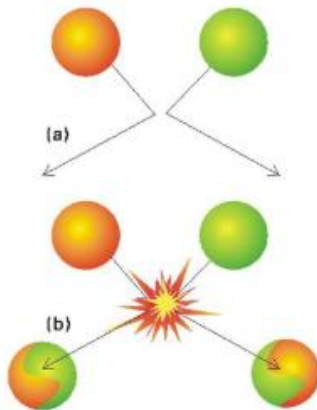


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2h. Catalysts lower the activation energy of a reaction.



Section 2 - Factors affecting the rate of reaction

Phrase		Definition
2a	Concentration	The number of molecules in a fixed volume of water or other solute. Usually measured in moles/dm ³ or g/dm ³ .
2b	Effect of concentration	increasing the concentration increases the rate of reaction as more molecules in a fixed volume of water means that the number of collisions per second will increase. More collisions gives a faster rate of reaction.
2c	Temperature	A measure of the average kinetic energy of the molecules . Usually measured in Celsius (°C)
2d	Effect of temperature	Increasing the temperature makes molecules move faster as they have more kinetic energy . This means they collide more often and collide with more energy. This means more collisions per second and a higher % of collisions have at least the activation energy.
2e	Pressure	How tightly packed gas molecules are together.
2f	Effect of pressure	Increasing pressure means more gas molecules in the same space, increasing the number of collisions so increasing the rate of reaction.
2g	Catalyst	A substance that increases the rate of reaction but isn't part of the reaction and so is not used up.
2h	Effect of catalyst	Lowers the activation energy meaning that more collisions have at least the activation energy. Increases the rate of reaction.

Key Words
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Section 3- Reversible reactions and equilibrium (Higher tier only)

Phrase		Definition
3a	Reversible reaction	A reaction where reactants can react together to make products (the forward reaction), but then the products may break down to re-form the reactants again (the backward reaction).
3b	Energy change in a reversible reaction	Reactions that give out energy (usually in the form of heat) are called exothermic. Reactions that take in energy (usually in the form of heat) are called endothermic reactions. If the forward reaction is exothermic, the backward reaction will be endothermic and vice versa .
3c	Equilibrium	If a reaction is reversible and the forward reaction is taking place at the same rate as the backward reaction, the reaction is said to be in equilibrium.
3d	Position of equilibrium	The rate at which the forward and backward reactions are taking place, affecting how much product or reactant is made.
3e	Le Chatelier's principle	If we change the conditions of the reaction (such as temperature, pressure or concentration), then we can change the position of equilibrium.
3f	Changing temperature	Increasing temperature means that the reaction is faster in the direction of the endothermic process.
3g	Changing concentration	Increasing concentration of a reactant means that the forward reaction rate increases.. Increasing concentration of a product means that the backward reaction rate increases
3h	Changing pressure	Increasing the pressure of a gas has the same effect as increasing the concentration. If you increase the pressure of a reactant, the rate of the forward reaction will be increased. If you increase the pressure of a product, the rate of the backward reaction will be increased.



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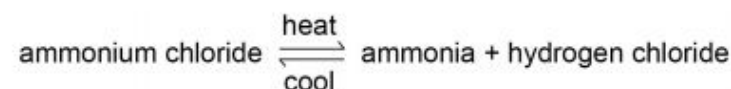
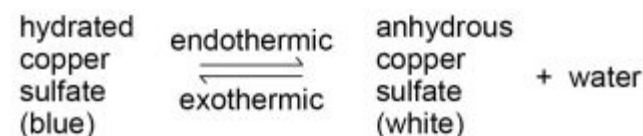
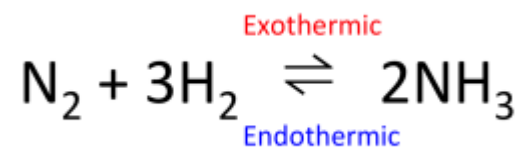


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3a. Some examples of reversible reactions showing the reversible reaction symbol.

