

<b>Subject</b>	<b>Chemistry</b>
<b>Unit/Topic</b>	Year 11 Rates of Reaction

Key Vocabulary	Definition
<b>Rate of reaction</b>	A measure of how quickly a reactant is used up, or a product is formed.
<b>Collision Theory</b>	For a chemical reaction to happen reactant particles must collide with each other.
<b>Activation energy</b>	The minimum amount of energy needed for a collision to be successful. It is different for different reactions.
<b>Surface area</b>	For a given mass of a solid, large lumps have smaller surface area to volume ratios than smaller lumps or powders. If a large lump is divided or ground into a powder: <ul style="list-style-type: none"> <li>• its total volume stays the same</li> <li>• the area of exposed surface increases</li> <li>• the surface area to volume ratio increases.</li> </ul>
<b>Concentration</b>	If the concentration of a reacting solution is increased: <ul style="list-style-type: none"> <li>• the reactant particles become more crowded</li> <li>• the frequency of collisions between reactant particles increases</li> <li>• the rate of reaction increases.</li> </ul>
<b>Pressure</b>	If the pressure of a reacting gas is increased: <ul style="list-style-type: none"> <li>• the reactant particles become more crowded</li> <li>• the frequency of collisions between reactant particles increases</li> <li>• the rate of reaction increases.</li> </ul>
<b>Catalyst</b>	A catalyst is a substance that increases the rate of a reaction but does not alter the products of the reaction. It is not chemically changed or used up at the end of the reaction.
<b>Reversible reaction</b>	Chemical reactions where the products of the reaction can react together to produce the original reactants.

<b>Equilibrium</b>	<p>When a reversible reaction happens in a closed container, it reaches a dynamic equilibrium. At equilibrium:</p> <ul style="list-style-type: none"><li>• the forward and backward reactions are still happening</li><li>• the forward and backward reactions have the same rate of reaction</li><li>• the concentrations of all the reacting substances remain constant.</li></ul>
<b>Le Chatelier's principle</b>	<p>The equilibrium position can be changed by changing the reaction conditions (pressure, concentration or temperature).</p> <p>When a change is made to a system at equilibrium, the position of equilibrium moves to counteract the change that was made.</p>

