

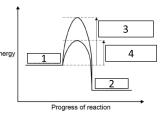
Year 11 Chemistry 6: Rates of Reaction Knowledge Organiser



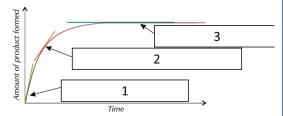
1. Keywords	
Rate of reaction	Amount of reactant used or product formed ÷ time
Collision theory	Idea that for a reaction to occur the particles have to hit each other with enough energy
Activation energy	The minimum energy needed for a collision to cause a reaction
Catalyst	A substance which speeds up a chemical reaction by lowering the activation energy
Reversible reaction	A chemical reaction that can go in either direction
Equilibrium	When the forwards and backwards reactions happen at the same rate

2. Ways to measure the rate of reaction				
Volume of gas produced				
Formation of a solid product	Figure 2: Investigating the size of the reaction between sodium throughts and physicolitics and,			
Change in mass	Cas released into the room. The contain word less the gas energy by an age the set of gaining exc. Mans elements Mans elemen			

5.	5. Catalysts		
1	Reactants		
2	Products	Ener	
3	Activation energy without catalyst		
4	Activation energy with catalyst		



3. Calculating rates from graphs		
1	At start steep slope so fast reaction	
2	As slope becomes less steep reaction is slowing	
3	Flat line shows reaction has finished	



4. Factors affecting rate of reaction			
Factor	Change	Effect on rate	Reason
Temperature	Increase	Increase	The particles are moving faster so collide more often and with a greater proportion of successful collisions
Concentration	Increase	Increase	The are more particles so collisions are more frequent
Surface area	Increase	Increase	There are more particles available so more collisions
Catalyst	add	increase	The lower activation energy means more particles can successfully collide

6. The effect of changing conditions on equilibrium (HT ONLY)

Le Charteliers principle: A reaction at equilibrium will act to oppose any change made to it

 $A + 2B \rightleftharpoons C + D$

	exothermic			
Condition	Change	Affect		
concentration	Increase A or B	Shifts right to increase the concentration of C+D		
	Decrease A or B	Shifts left to increase concentration of A+B		
Temperature	Increase	Shifts right in favour of the endothermic reactions making more C+D		
	Decrease	Shifts left in favour of the exothermic reactions making more A+B		
Pressure	Increase	Shifts right to the side with the fewest moles so makes more of C+D		
	Decrease	Shifts left tot eh side with the most moles so makes more A+B		