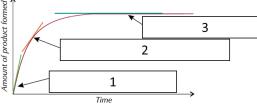


Year 11 Chemistry 6: Rates of Reaction Knowledge Organiser



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 col- lision to cause a reaction		
Catalyst	A substance which speeds up a chemi- cal 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 t	he rate of reaction		
Volume of gas produced			
Formation of a solid product	Figure 2: Investigating the rate of the reaction Descent introductions: a rate of the reaction Descent introduction and individualities: a rate.		
Change in mass	Car released in the norm. Marsie American Marsie American Mars		
5. Catalysts	↑		
1 Reactants			
2 Products	UCTS Energy 1 4		
3 Activation energy v	Activation energy without catalyst		
4 Activation energy v	Activation energy with catalyst		

3. Ca	Iculating rates from graphs	ormod
1	At start steep slope so fast reaction	oduct 6
2	As slope becomes less steep reaction is slowing	nt of n
3	Flat line shows reaction has finished	Amor



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 \leftarrow C +D				
Change	Affect			
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			
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			
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			
	Change Increase A or B Decrease Decrease Increase Increase Increase			