High Tunstall College of Science Curriculum Intent

Subject: Chemistry Year: 11

Thread 3a – Chemical and energy change



	Chemistry Thread 3a	Progress		
Торіс	Key ideas	R	Α	G
Chemical and energy change	I can explain the terms oxidation and reduction, and link this to electrons			
	I can explain how to carry out a titration			
	I can calculate the concentration of a unknown solution using information from a titra- tion practical			
	I can apply my knowledge of titrations to calculate the concentration of a mystery solu- tion			
	I can explain the meaning of the terms 'strong' and 'weak' acid			

Lesson	Learning Focus	Assessment	Key Words
1	What are REDOX reactions?	Application of Redox reac- tions to ionic bonding	Redox, oxidation, reduc- tion
2	What is a titration?	Production of a detailed method to carry out a titra- tion, considering potential sources of error and how these can be minimised	Titration, moles, concen- tration, volume
3	How do we calculate concentration from titra- tions?	Completion of titration calcu- lations	Titration, moles, concen- tration, volume
4	Required Practical Activity—Titration	Completion of titration RPA	Titration, moles, concen- tration, volume
5	What is the difference between strength and con- centration?	Application of understanding to exam questions	Weak acid, strong acid, H+ ions

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<u>Thread 3b – Chemical and energy change</u>



	Chemistry Thread 3b		Progress		
Торіс	Key ideas	R	Α	G	
Chemical and energy change	I can explain what electrolysis is				
	I can explain how electrolysis is used to separate molten ionic substances, and consider this in terms oxidation and reduction using half equations				
	I can explain how the products formed from the electrolysis of aqueous solutions is dependent upon reactivity				
	I can explain how aluminium is extracted using electrolysis				
	I can compare the use of hydrogen fuel cells to other energy resources				
	I can use bond energy information to calculate the overall energy change in a reaction, and explain whether the reaction is exothermic or endothermic				

Lesson	Learning Focus	Assessment	Key Words
1	What is electrolysis, and how is this used to sepa- rate molten ionic compounds?	Annotation of electrolytic cell and identification of the ele- ments produced	Electrolysis, molten, aqueous, current
2	How is electrolysis used to separate aqueous so- lutions?	Explanation of how electroly- sis of aqueous solutions is different to molten solutions, and prediction of elements produced	Cathode, anode, aque- ous, ions, current
3	How is aluminium extracted?	Production of fact file ex- plaining how aluminium is extracted using electrolysis	Bauxite, cryolite, extrac- tion
4	Required Practical Activity—Electrolysis	Completion of titration RPA	
5	What are fuel cells?	Detailed explanation of how fuel cells and chemical cells work, and a comparison of these with other sources of energy	Fuel cell, battery
6	How can we quantify energy change in chemical reactions?	Calculation of overall energy change in reactions, and clas- sification of these as endo- thermic or exothermic based on the results	Bond energy, exother- mic, endothermic