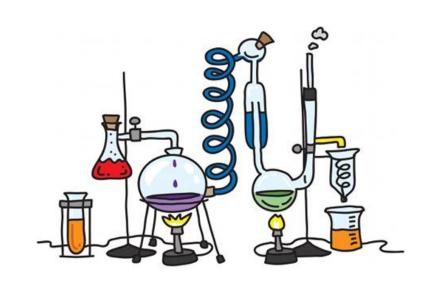


INDUCTION 2024

CONTENTS:

- SUITABILITY (2)
- WHY CHOOSE IT? (3)
- EXPECTATIONS (4)
- SPECIFICATION (5)
- **CONTENT** (6)
- EXAMS (7-9)
- INDUCTION TEST (10-13)
- SUMMER PREP WORK (14)
- INDUCTION TASK (15)



CHEMISTRY SIXTH FORM

SUITABILITY:

- APS 5.2
- Grade 6 in GCSE Sciences. If more than one Science at least two must be at a grade 6 (one must be Chemistry).
- Grade 6 in GCSE Maths

 (discussion with department if a grade 5 is achieved)
- Pass the entry exam.

In all topics, you will need to learn facts and build a body of knowledge but also to understand and apply the ideas. Many topics include calculations and so you should feel comfortable rearranging equations and using numbers.

Importantly, chemistry is a hands-on science and you will carry out experiments on a regular basis. This is to consolidate your theory work, but also provide you with the opportunity to use new apparatus and build your skills and confidence to complete safe and accurate practical work.



WHY CHOOSE IT?

- Chemistry A level is a highly respected A level, with its broad variety of tested skills, and it is a good choice for many degrees and careers. Chemistry has been described as the 'central science' and is often combined with either physics or biology. It is usually a compulsory choice for anyone wishing to pursue medicine, dentistry and veterinary science, as well as chemistry-based degrees such as pharmacy, pharmacology and biochemistry.
- It has both theoretical and practical aspects which keeps lessons interesting and varied.
- It is taught by very experienced members of staff.
- It enables you to develop crucial employability skills including researching, problem solving and analysing.

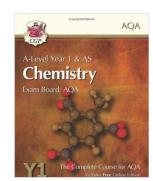
 Chemistry often requires teamwork and communication skills too, which is great for project management.





EXPECTATIONS:

- ATTENDANCE- needs to be extremely high otherwise you won't do well. A level chemistry is tough and every year we have students who find the transition difficult. What ever the topic, activity, or task you are set you will have to give your FULL commitment.
- DEADLINES- always must be met.
- RECORD KEEPING- you need to keep your study notes/work in an organised folder. You will also need to buy an A4 hardback lab book to write up your experiments in. You will have a minimum of 12 experiments over the two years. If your lab book is assessed as up to standard you will also be accredited with the experimental award on your final certificate.
- TEXTBOOKS- we strongly advise you to purchase the recommended book(s).



https://www.amazon.co.uk/New--Level-Chemistry-AQA-Student/dp/1782943218/ref=sr_1_3?s=boo ks&ie=UTF8&qid=1467284369&sr=1-3&keywords=aga+chemistry+as+year+1

CHEMISTRY SIXTH FORM CHEMISTRY

SPECIFICATION:

https://filestore.aqa.org.uk/resources/chemistry/specifications/AQA-7404-7405-SP-2015.PDF



AS AND A-LEVEL CHEMISTRY

AS (7404) A-level (7405)

Specifications

For teaching from September 2015 onwards For AS exams in May/June 2016 onwards For A-level exams in May/June 2017 onwards



CONTENT:

- 3.1 Physical chemistry page 11
- 3.1.1 Atomic structure page 11
- 3.1.2 Amount of substance page 13
- 3.1.3 Bonding page 16
- 3.1.4 Energetics page 19
- 3.1.5 Kinetics page 20
- 3.1.6 Chemical equilibria, Le Chatelier's principle and K_c page 22
- 3.1.7 Oxidation, reduction and redox equations page 24
- 3.1.8 Thermodynamics (A-level only) page 25
- 3.1.9 Rate equations (A-level only) page 27
- 3.1.10 Equilibrium constant K, for homogeneous systems (A-level only) page 29
- 3.1.11 Electrode potentials and electrochemical cells (A-level only) page 30
- 3.1.12 Acids and bases (A-level only) page 32
 - 3.2 Inorganic chemistry page 34
 - 3.2.1 Periodicity page 34
 - 3.2.2 Group 2, the alkaline earth metals page 35
 - 3.2.3 Group 7(17), the halogens page 36
 - 3.2.4 Properties of Period 3 elements and their oxides (A-level only) page 38

3 main topics:

1. Physical Chemistry

2. Inorganic Chemistry

3. Organic Chemistry

- 3.2.5 Transition metals (A-level only) page 39
- 3.2.6 Reactions of ions in aqueous solution (A-level only) page 44

- 3.3 Organic chemistry page 45
- 3.3.1 Introduction to organic chemistry page 45
- 3.3.2 <u>Alkanes</u> page 47
- 3.3.3 <u>Halogenoalkanes</u> page 48
- 3.3.4 Alkenes page 49
- 3.3.5 Alcohols page 51
- 3.3.6 Organic analysis page 53
- 3.3.7 Optical isomerism (A-level only) page 54
- 3.3.8 Aldehydes and ketones (A-level only) page 55
- 3.3.9 Carboxylic acids and derivatives (A-level only) page 56
- 3.3.10 Aromatic chemistry (A-level only) page 57
- 3.3.11 Amines (A-level only) page 58
- 3.3.12 Polymers (A-level only) page 59
- 3.3.13 Amino acids, proteins and DNA (A-level only) page 60
- 3.3.14 Organic synthesis (A-level only) page 63
- 3.3.15 Nuclear magnetic resonance spectroscopy (A-level only) page 64
- 3.3.16 Chromatography (A-level only) page 65





EXAMS:

Content that will be taught and internally examined in year 12 but will <u>not</u> count to your overall grade.

Assessments

Paper 1

What's assessed

- Relevant Physical chemistry topics (sections 3.1.1 to 3.1.4, 3.1.6 and 3.1.7)
- Inorganic chemistry (Section 3.2.1 to 3.2.3)
- Relevant practical skills

How it's assessed

- written exam: 1 hour 30 minutes
- 80 marks
- 50% of the AS

Questions

65 marks of short and long answer questions

15 marks of multiple choice questions

Paper 2

What's assessed

- Relevant Physical chemistry topics (sections 3.1.2 to 3.1.6)
- Organic chemistry (Section 3.3.1 to 3.3.6)
- Relevant practical skills

How it's assessed

- written exam: 1 hour 30 minutes
- 80 marks
- 50% of the AS

Questions

65 marks of short and long answer questions

15 marks of multiple choice questions





EXAMS:

Content that will be taught and externally examined in year 13 and will count to your overall grade.

Paper 1

What's assessed

- Relevant Physical chemistry topics (sections 3.1.1 to 3.1.4, 3.1.6 to 3.1.8 and 3.1.10 to 3.1.12)
- Inorganic chemistry (Section 3.2)
- Relevant practical skills

How it's assessed

- written exam: 2 hours
- 105 marks
- 35% of A-level

Questions

105 marks of short and long answer questions

Paper 2

What's assessed

- Relevant Physical chemistry topics (sections 3.1.2 to 3.1.6 and 3.1.9)
- Organic chemistry (Section 3.3)
- Relevant practical skills

How it's assessed

- written exam: 2 hours
- 105 marks
- 35% of A-level

Questions

105 marks of short and long answer questions

+ Paper 3

What's assessed

- Any content
- Any practical skills

How it's assessed

- · written exam: 2 hours
- 90 marks
- 30% of A-level

Questions

40 marks of questions on practical techniques and data analysis

20 marks of questions testing across the specification

30 marks of multiple choice questions

7404/7405	A	S			A2	
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	Paper	Paper		Paper	Paper	
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3.1 Physical chemistry	50	50		55		
3.1.1 Atomic structure						
3.1.2 Amount of substance						
3.1.3 Bonding						
3.1.4 Energetics						
3.1.5 Kinetics			П			
3.1.6 Chemical equilibria, Le Chatelier's principle and Kc						
3.1.7 Oxidation, reduction and redox equations						
3.1.8 Thermodynamics						
3.1.9 Rate equations			П			
3.1.10 Equilibrium constant Kp for homogeneous systems						
3.1.11 Electrode potentials and electrochemical cells			П			
3.1.12 Acids and bases			П			
3.2 Inorganic chemistry						
3.2.1 Periodicity			П			
3.2.2 Group 2, the alkaline earth metals			1			Г
3.2.3 Group 7(17), the halogens			1			Г
3.2.4 Properties of Period 3 elements and their oxides			П			Г
3.2.5 Transition metals			П			
3.2.6 Reactions of ions in aqueous solution			П			
3.3 Organic chemistry						
3.3.1 Introduction to organic chemistry						
3.3.2 Alkanes						
3.3.3 Halogenoalkanes						
3.3.4 Alkenes						
3.3.5 Alcohols						
3.3.6 Organic analysis						
3.3.7 Optical isomerism						
3.3.8 Aldehydes and ketones						
3.3.9 Carboxylic acids and derivatives						
3.3.10 Aromatic chemistry						
3.3.11 Amines]			
3.3.12 Polymers		_				
3.3.13 Amino acids, proteins and DNA						
3.3.14 Organic synthesis						
3.3.15 Nuclear magnetic resonance spectroscopy						
3.3.16 Chromatography						

EXAMS:

GCSE CHEMISTRY PAPER 1

https://filestore.aqa.org. uk/resources/chemistry/ specifications/AQA-8462-SP-2016.PDF

Section Chapter Trilogy RP 4.1.1.1 Atoms, elements and compounds Paper 4.1.1 A simple model of the atom, 4.1.1.3 The development of the model of the atom (common content with physics) symbols, relative atomic mass, electronic 4.1.1.4 Relative electrical charges of subatomic particles charge and isotopes 4.1.1.5 Size and mass of atoms 4.1.1.6 Relative atomic mass 4.1.1.7 Electronic structure 4.1.2.1 The periodic table T 4.1.2.2 Development of the periodic table Paper 4.1.2.3 Metals and non-metals 4.1.2 The periodic table 4.1.2.4 Group 0 4.1.2.5 Group 1 4.1.2.6 Group 7 1.1.3.1 Comparison with Group 1 elements 4.1.3 Properties of tranistion metals 4.1.3.2 Typical properties Paper 4.2.1.1 Chemical bonds 4.2.1.2 Ionic bonding 4.2.1 Chemical bonds, ionic, covalent and 4.2.1.3 Ionic compounds metallic 4.2.1.4 Covalent bonding and the properties of 4.2.1.5 Metallic bonding ┙ 4.2.2.1 The three states of matter 4.2.2.2 State symbols Paper 4.2.2.3 Properties of ionic compounds 4.2.2 How bonding and structure are 4.2.2.4 Properties of small molecules 4.2.2.5 Polymers related to the properties of substances 4.2.2.6 Giant covalent structures 4.2.2.7 Properties of metals and alloys ┥ 4.2.2.8 Metals as conductors Paper 4.2.3.1 Diamond 4.2.3 Structure and bonding of carbon 4.2.3.2 Graphite 4.2.3.3 Graphene and fullerenes 4.2.4.1 Sizes of particles and their properties 4.2.4 Bulk and surface properties of 4.2.4.2 Use of nanoparticles ┙ 4.3.1 Chemical measurements, 4.3.1.1 Conservation of mass and balanced chemical equations Paper conservation of mass and the 4.3.1.2 Relative formula mass quantitative interpretation of chemical 4.3.1.3 Mass changes when a reactant or product is a gas 4.3.1.4 Chemical measurements 4.3.2.2 Moles (HT ONLY) 4.3.2.2 Amounts of substances in equations (HT ONLY) 4.3.2 Use of amount of substance in 4.3.2.3 Using moles to balance equations (HT ONLY) relation to masses of pure substances ┙ 4.3.2.4 Limiting reactions (HT ONLY) Paper 4.3.2.5 Concentration of solutions 4.3.3 Yield and atom economy of 4.3.3.1 Percentage yield 3.5 Use of amount of substance in relation to volumes of gases (HT ONLY) ┙ 4.4.1.1 Metal oxides Paper 4.4.1.2 The reactivity series 4.4.1 Reactivity of metals 4.4.1.3 Extraction of metals and reduction 4.4.1.4 Oxidation and reduction in terms of electrons (HT ONLY) 4.4.2.1 Reactions of acids with metals 4.4.2.2 Neutralisation of acids and salt production 4.4.2.3 Soluble salts 4.4.2 Reactions of acids 4.4.2.4 The pH scale and neutralisation Paper 4.4.2.5 Titration 4.4Chen 4.4.2.6 Strong and weak acids (HT ONLY) 4.4.3.1 The process of electrolysis 4.4.3.2 Electrolysis of molten ionic compounds 4.4.3 Electrolysis 4.4.3.3 Using electrolysis to extract metals 4.4.3.4 Electrolysis of aqueous solutions RP3 4.4.3.5 Representation of reactions at electrodes as half equations (HT ONLY) Paper 4.5.1.1 Energy transfer during exothermic and endothermic reactions RP4 4.5.1 Exothermic and endothermic 4.5.1.2 Reaction profiles reactions 4.5.1.3 The energy changes of reactions (HT ONLY) 4.5.2 Chemical cells and fuel cells 4.5.2.2 Fuel cells

GCSE CHEMISTRY PAPER 2

https://filestore.aqa.org.auk/resources/chemistry/specifications/AQA-8462-SP-2016.PDF

	ı	4.6.1.1 Calculating rates of reactions		1	
_	4.6.1 Rate of reaction			RP 5	11
per 2		4.6.1.3 Collision theory and activation energy			
		4.6.1.4 Catalysts		<u> </u>	1
	4.6.2 Reversible reactions and dynamic equilibrium				
	4.7.1 Carbon compounds as fuels and feedstock				
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.9	4.7.2 Reactions of alkenes and alcohols				
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	polymers				
		40440	4.7.3.4 DNA (de	oxyribonucieic	acia) and oth
	4.8.1 Purity, formulations and				
				RP 6	
-12	4.8.2 Identification of common gases				
4.8 Chemical analys					
		4.8.2.4 Test for chlorine			
	4.8.3 Indentification of ions by chemical and spectroscopic means				
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				otes	
					RP 7
			4.8.3.7 Flame e	mission spectro	scopy
	4.9.1 The composition and evolution of the Earth's atmosphere				
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mg G	4.9.2 Carbon dioxide and methane as greenhouse gases		here		
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	and their sources	4.9.3.2 Properties and effects of atmospheric pollutants			
4.9 Chemi	4.10.1 Using the Earth's resources and obtaining potable water 4.10.2 Life cycle assessment and recycling				
				RP 8	
8					
g resourc		4.10.1.4 Alternative methods of extracting metals (HT ONLY)			
		4.10.2.1 Life cycle assessment			
		4.10.2.2 Ways of reducing the use of resources			
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Using n					
10 Using n	4.10.3 Using materials			as useful mater	
4.10 Using resour	4.10.3 Using materials		4.10.3.2 Alloys		ials
4.10 Using r	4.10.3 Using materials 4.10.4 The Haber process and the use of		4.10.3.2 Alloys	as useful mater ics, polymers ar	ials
	4.9 Chemistry of the 4.8 Chemical analysis 4.7 Organic chemistry 4.6	4.6.2 Reversible reactions and dynamic equilibrium 4.7.1 Carbon compounds as fuels and feedstock 4.7.2 Reactions of alkenes and alcohols 4.7.3 Synthetic and naturally occurring polymers 4.8.1 Purity, formulations and chromatography 4.8.2 Identification of common gases 4.8.3 Indentification of ions by chemical and spectroscopic means 4.9.1 The composition and evolution of the Earth's atmosphere 4.9.2 Carbon dioxide and methane as greenhouse gases 4.9.3 Common atmospheric pollutants and their sources 4.10.1 Using the Earth's resources and obtaining potable water	4.6.1 A Collision theory and activation energy 4.6.1.4 Catalysts 4.6.1 Reversible reactions 4.6.2 Reversible reactions and dynamic equilibrium 4.6.2 Reversible reactions and dynamic equilibrium 4.6.2 Reversible reactions 4.6.2 Reversible reactions and dynamic equilibrium 4.6.2 Reversible reactions and dynamic equilibrium 4.6.2 Reversible reactions and 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INDUCTION TEST:

First lesson in september.

We would expect you to know this as a minimum. Including 'triple' (chemistry only) topics.

https://filestore.aqa.org.uk/resources/chemistry/specifications/AQA-8462-SP-2016.PDF

ection	Chapter	Topic	Chemistry spec	Trilogy RP	Cher
		4.1.1.1 Atoms, elements and compounds			
릙	4.1.1 A simple model of the atom, symbols, relative atomic mass, electronic	4.1.1.2 Mixtures			
e periodic tab		4.1.1.3 The development of the model of the atom (common content with physics)			-
	charge and isotopes	4.1.1.5 Size and mass of atoms			
		4.1.1.6 Relative atomic mass			_
£		4.1.1.7 Electronic structure			_
ĕ		4.1.2.1 The periodic table			_
Atomic Structure and the periodic table		4.1.2.2 Development of the periodic table			-
		4.1.2.3 Metals and non-metals	_		-
	4.1.2 The periodic table	4.1.2.4 Group 0	_		-
		4.1.2.5 Group 1	_		-
E		4.1.2.5 Group 7			-
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4.1	4.1.3 Properties of tranistion metals		4.1.3.1 Compar		p 2 ele
<u> </u>			4.1.3.2 Typical	properties	-
		4.2.1.1 Chemical bonds			-
ě	4.2.1 Chemical bonds, ionic, covalent and	d 4.2.1.2 lonic bonding 4.2.1.3 lonic compounds			-
2	metallic				_
-	mecanic	4.2.1.4 Covalent bonding			
80		4.2.1.5 Metallic bonding			
E E		4.2.2.1 The three states of matter			
o o	1	4.2.2.2 State symbols			
Ö.	1	4.2.2.3 Properties of ionic compounds			П
£	4.2.2 How bonding and structure are	4.2.2.4 Properties of small molecules			т
E	related to the properties of substances	4.2.2.5 Polymers			т
2		4.2.2.6 Giant covalent structures			$\overline{}$
₹		4.2.2.7 Properties of metals and alloys			-
2		4.2.2.8 Metals as conductors			_
S S		4.2.3.1 Diamond			
듞	4.2.3 Structure and bonding of carbon	4.2.3.2 Graphite			_
6	413 30 actare and bonding or carbon	4.2.3.3 Graphine 4.2.3.3 Graphene and fullerenes			-
4.2 Bonding, structure and the properties of matter	4.2.4 Bulk and surface properties of	4.2.3.3 dispricte and failerenes	4.2.4.1 Sizes of	particles and t	heir or
4	matter including nanoparticles		4.2.4.2 Use of n	janonarticles	THE PR
	4.3.1 Chemical measurements.	4.3.1.1 Conservation of mass and balanced chemical equations	4.2.4.2 Use by I	nunugurtities	-
	4.3.1 Chemical measurements, conservation of mass and the	4.3.1.1 Conservation of mass and balanced chemical equations 4.3.1.2 Relative formula mass			-
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\$	quantitative interpretation of chemical	4.3.1.3 Mass changes when a reactant or product is a gas			-
¥	equations	4.3.1.4 Chemical measurements	_		-
2		4.3.2.2 Moles (HT ONLY)			-
ě	4.3.2 Use of amount of substance in	4.3.2.2 Amounts of substances in equations (HT ONLY)			-
- 1	relation to masses of pure substances	4.3.2.3 Using moles to balance equations (HT ONLY)			-
2		4.3.2.4 Limiting reactions (HT ONLY)			-
2		4.3.2.5 Concentration of solutions			
4.3 Quantitative chemistry	4.3.3 Yield and atom economy of		4.3.3.1 Percent	age yield	ഥ
4	chemical reactions		4.3.3.2 Atom ed	conomy	
	4.3.4 Using concentrations of solutions in	mol/dm3 (HT ONLY)			
	4.3.5 Use of amount of substance in relat				
		4.4.1.1 Metal oxides			$\overline{}$
	L	4.4.1.2 The reactivity series	_		-
	4.4.1 Reactivity of metals	4.4.1.3 Extraction of metals and reduction			-
	1	4.4.1.4 Oxidation and reduction in terms of electrons (HT ONLY)	_		_
9	—	4.4.2.1 Reactions of acids with metals	_		_
ě	1	4.4.2.2 Neutralisation of acids and salt production	_		-
Į.	1	4.4.2.3 Soluble salts	_	RP 1	-
70	4.4.2 Reactions of acids	4.4.2.4 The pH scale and neutralisation		NF 1	+
ĕ		4.4.2.4 The pri scale and neutralisation	4.4.2.E.Thornton		RP2
4.4 Chemical changes		4.4.2.6 Strong and weak acids (HT ONLY)	4.4.2.5 Titration	73	RP2
ě					-
4	4.4.3 Electrolysis	4.4.3.1 The process of electrolysis			-
		4.4.3.2 Electrolysis of molten ionic compounds	_		-
		4.4.3.3 Using electrolysis to extract metals			_
		4.4.3.4 Electrolysis of aqueous solutions		RP3	\perp
		4.4.3.5 Representation of reactions at electrodes as half equations (HT ONLY)		l	
	4.5.1 Exothermic and endothermic	4.5.1.1 Energy transfer during exothermic and endothermic reactions		RP 4	
6 10 10	4.5.1 Exothermic and endothermic reactions	4.5.1.2 Reaction profiles			
4.5 Energy changes	reactions	4.5.1.3 The energy changes of reactions (HT ONLY)			Т
			4.5.2.1 Cells on	d hattarias	_
8, 6	4.5.2 Chemical cells and fuel cells				

		4.6.1.1 Calculating rates of reactions			_
_		4.6.1.2 Factors with affect the rates of chemical reactions	_	RP 5	_
e rate and extent	4.6.1 Rate of reaction	4.6.1.3 Collision theory and activation energy		5	
	1	4.6.1.4 Catalysts			
		4.6.2.1 Reversible reactions			
	1	4.6.2.2 Energy changes and reversible reactions			
	4.6.2 Reversible reactions and dynamic	4.6.2.3 Equilibrium			
	4.6.2 Reversible reactions and dynamic equilibrium	4.6.2.4 The effect of changing conditions on equilibrium (HT ONLY)			
	equilibrium	4.6.2.5 The effect of changing concentration (HT ONLY)			
	1	4.6.2.6 The effect of temperature changes on equilibrium (HT ONLY)			
		4.6.2.7 The effect of pressure changes on equilibrium (HT ONLY)			
		4.7.1.1 Crude oil, hydrocarbons and alkanes			
	4.7.1 Carbon compounds as fuels and	4.7.1.2 Fractional distillation and petrochemicals			
>	feedstock	4.7.1.3 Properties of hydrocarbons			
Ę		4.7.1.4 Cracking and alkenes			
8			4.7.2.1 Structur	re and formulae	e of alkene
Organic chemistry	4.7.2 Reactions of alkenes and alcohols		4.7.2.2 Reactio	ns of alkenes	
ğ	4.7.2 Reuctions of dikenes and diconois		4.7.2.3 Alcohol		
9	1		4.7.2.4 Carbox	rlic acids	
4.7 0			4.7.3.1 Addition	n polymerisatio	17
4	4.7.3 Synthetic and naturally occurring		4.7.3.2 Conden	sation polymen	isation (H
	polymers		4.7.3.3 Amino	cids (HT ONLY))
			4.7.3.4 DNA (di	eaxyribonucleic	acid) and
	4040-0-5	4.8.1.1 Pure substances			
	4.8.1 Purity, formulations and chromatography	4.8.1.2 Formulations			
	chromatography	4.8.1.3 Chromatography		RP6	
		4.8.2.1 Test for hydrogen			
Chemicalanalysis		4.8.2.2 Test for oxygen			
		4.8.2.3 Test for carbon dioxide			
- 2		4.8.2.4 Test for chlorine			
Ě			4.8.3.1 Flame t	ests	
ě	1		4.8.3.2 Metal h	ydroxides	
99	4.8.3 Indentification of ions by chemical		4.8.3.3 Carbon		
-	and spectroscopic means		4.8.3.4 Halides		
	and spectroscopic means		4.8.3.5 Sulfates		RP 7
	1		4.8.3.6 Instrum		
			4.8.3.7 Flame 6	mission spectro	oscopy
	4.9.1 The composition and evolution of the Earth's atmosphere	4.9.1.1 The proportions of different gases in the atmosphere			
		4.9.1.2 The Earth's early atmosphere			
ş		4.9.1.3 How oxygen increased			
g a		4.9.1.4 How carbon dioxide decreased			
€ €		4.9.2.1 Greenhouse gases			
4.9 Chemistry of the atmosphere	4.9.2 Carbon dioxide and methane as	4.9.2.2 Human activities which contribute to an increase in greenhouse gases in the atm	osphere		
충청	greenhouse gases	4.9.2.3 Global climate change			
oj.		4.9.2.4 The carbon footprint and its reduction			
	4.9.3 Common atmospheric pollutants	4.9.3.1 Atmospheric pollutants from fuels			
	and their sources	4.9.3.2 Properties and effects of atmospheric pollutants			
		4.10.1.1 Using the Earth's resources and sustainable development			
1		4.10.1.2 Potable water		RP8	
8	obtaining potable water	4.10.1.3 Waster water treatment			
2		4.10.1.4 Alternative methods of extracting metals (HT ONLY)			
4.10 Using resources	4.10.2 Life cycle assessment and recyclin	4.10.2.1 Life cycle assessment			
<u>.</u>	4.10.2 the tythe assessment and recyclin	4.10.2.2 Ways of reducing the use of resources			
- 5			4.10.3.1 Corres		
101	4.10.3 Using materials			4.10.3.2 Alloys as useful materials	
4			4.10.3.3 Ceram	ics, polymers a	nd compo
	4.10.4 The Haber process and the use of		4.10.4.1 The Hi		
1	NPK fertilisers		4.10.4.2 Produ	ction and use of	F NPK feet



INDUCTION TEST:

First lesson in September.

We would expect you to know the following as a minimum:

- 4.1 Atomic Structure and the periodic table:
 - subatomic particles, electronic structure, noble gases, halogens, alkali metals
- 4.2 Bonding, structure and the properties of matter
 - bonding x3, properties of small molecules/alloys/ionic/covalent compounds
 - 4.3 Quantitative chemistry:
 - balancing equations, Mr, moles, amount of substances in equations, limiting reactions
- 4.4 Chemical changes:
 - reactivity series, metal extraction, salts, electrolysis, metal+acid reactions,
- 4.5 Energy changes:
 - exothermic and endothermic reactions, reaction profiles
- 4.6 The rate and extent of chemical change:
 - calculating rate, factors, reversibility/equilibrium
- 4.7 Organic chemistry

crude oil, hydrocarbons, alkanes, fractional distillation, cracking

- 4.8 Chemical analysis:
 - chromatography, gas tests,
- 4.9 Chemistry of the atmosphere:
 - atmosphere composition, atmosphere evolution, climate change, pollutants
- 4.10 Using resources:

sustainable development, potable water, waste water treatment

https://filestore.aq a.org.uk/resources/ chemistry/specifica tions/AQA-8462-SP-2016.PDF

INCLUDING 'TRIPLE'
(CHEMISTRY ONLY)
TOPICS

SUMMER PREP WORK:

booklet



The most important thing you can do to prepare over summer is to know GCSE Chemistry like the back of your hand. You cannot build a tower block on shaky foundations. If you were a 'triple' student then revise all Chemistry you were ever taught for GCSE. If you were a 'combined' student then it is expected that you to **learn the extra 'triple' content** before the induction test in September....on top of revising the 'combined' content. https://filestore.aqa.org.uk/resources/chemistry/specifications/AQA-8462-SP-2016.PDF

Pre-reading:

'Head Start to A-Level Chemistry'- GCP

'Essential Maths Skills for A-Level Chemistry'- GCP

List of good A-Level Chemistry websites: (with the caveat that I cannot check every web page that appears on these websites)

http://www.chemguide.co.uk

http://www.s-cool.co.uk/a-level/chemistry

http://www.a-levelchemistry.co.uk

http://www.physicsandmathstutor.com/chemistry-revision/a-level-aga/

http://www.rsc.org/learn-chemistry/wiki/A-Level Chemistry Revision

http://www.docbrown.info/page13/page13.htm



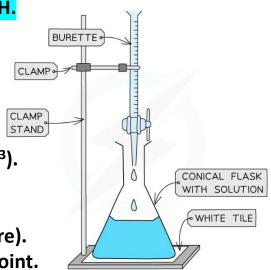
INDUCTION TASK

COMBINED KIDS PAIR UP WITH TRIPLE AS YOU'VE NOT DONE TITRATIONS...watch a video if you're struggling

- 1. 25 cm³ of NaOH (unknown concentration) and few drops of indicator in conical flask.
- 2. H₂SO₄ in burette
- 3. Titrate the alkali with acid and find unknown concentration of the NaOH.

EXTRA HELP

- 1. Use the volumetric pipette to measure 25 cm³ of alkali.
- 2. Transfer the alkali to a conical flask and place on a white tile.
- 3. Add a few drops of indicator to the conical flask.
- 4. Using a funnel fill a burette with acid and record the starting volume (cm³).
- 5. Add the acid to the alkali whilst swirling the conical flask.
- 6. Keep adding alkali until the colour changes (end point).
- 7. Record the final volume of acid and calculate the total volume added (titre).
- 8. Repeat steps 1-6 but add the acid drop by drop when you near the end point.
- 9. Repeat the process until you get at least two concordant results (± 0.10 cm³).
- 10. Use the concordant results to calculate an average titre.
- 11. Use the titre volume to calculate the unknown concentration of the alkali.



IN FOLDER IF NECESSARY

