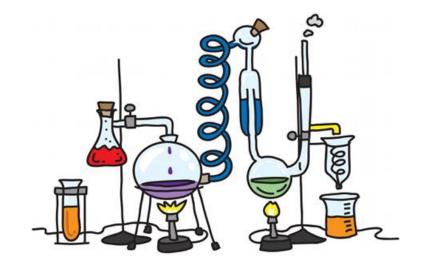


INDUCTION 2023

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)







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.

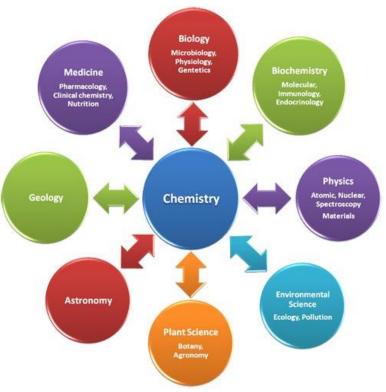
In all topics, you will need to learn facts and build a body of knowledge but also to understand and apply the ideas. Many topics include calculations and so you should feel comfortable rearranging equations and using numbers.

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?

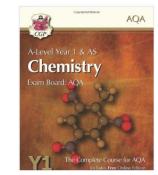
- Chemistry A level is a highly respected A level, with its broad variety of tested skills, and it is a good choice for many degrees and careers. Chemistry has been described as the 'central science' and is often combined with either physics or biology. It is usually a compulsory choice for anyone wishing 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=aqa+chemistry+as+year+1





SPECIFICATION:

https://filestore.aqa.org.uk/resources/chemist ry/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

Version 1.1 December 2015

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

- 3 main topics:
- **1. Physical Chemistry**
- 2. Inorganic Chemistry
- 3. Organic Chemistry



- 3.3.1 Introduction to organic chemistry page 45
- 3.3.2 Alkanes page 47

SIXTH FORN

- 3.3.3 Halogenoalkanes 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



S 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





Content that will be taught and externally examined in year 13 and <u>will</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 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

EXAMS:

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

					2	e
	Paper	Paper		Paper	Paper	Paper
				Ра	Ра	Ра
Weighting (%)	50	50		35	35	30
3.1 Physical chemistry						
3.1.1 Atomic structure						
3.1.2 Amount of substance						
3.1.3 Bonding						
3.1.4 Energetics						
3.1.5 Kinetics						
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						
3.1.10 Equilibrium constant Kp for homogeneous systems						
3.1.11 Electrode potentials and electrochemical cells						
3.1.12 Acids and bases						
3.2 Inorganic chemistry						
3.2.1 Periodicity						
3.2.2 Group 2, the alkaline earth metals						
3.2.3 Group 7(17), the halogens						
3.2.4 Properties of Period 3 elements and their oxides						
3.2.5 Transition metals						
3.2.6 Reactions of ions in aqueous solution						
3.3 Organic chemistry						
3.3.1 Introduction to organic chemistry			Π			
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:

A2

AS

GCSE CHEMISTRY PAPER 1

Section

Paper

Chapter

Topic

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

		crupter				
			4.1.1.1 Atoms, elements and compounds			
1	4		4.1.1.2 Mixtures			
	8	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)			
	4.1 Atomic Structure and the periodic table		4.1.1.4 Relative electrical charges of subatomic particles			
Paper			4.1.1.5 Size and mass of atoms			10
¥ 1	a.	charge and isotopes				TO
0	e la		4.1.1.6 Relative atomic mass			
_	t p		4.1.1.7 Electronic structure			
_	le la		4.1.2.1 The periodic table			
1	e e		4.1.2.2 Development of the periodic table			
<u> </u>	đ		4.1.2.3 Metals and non-metals			
a	E I	4.1.2 The periodic table				
ō	S	-	4.1.2.4 Group 0			
	Ē		4.1.2.5 Group 1			
Paper	Atto		4.1.2.6 Group 7			
_				4.1.3.1 Compa	ison with Grou	p 1 elements
-	4	4.1.3 Properties of tranistion metals		4.1.3.2 Typical		
			4.2.1.1 Chemical bonds	Transia Typetor	- operates	
5	<u> </u>					
e	tte	4.2.1 Chemical bonds, ionic, covalent and	4.2.1.2 Ionic bonding			
D	2	metallic	4.2.1.3 Ionic compounds			
O	of C	n na cannia	4.2.1.4 Covalent bonding			
Paper	a a		4.2.1.5 Metallic bonding			
	e		4.2.2.1 The three states of matter			
1	đ		4.2.2.2 State symbols			
5	bud					
a)	e P		4.2.2.3 Properties of ionic compounds			
õ	1 p	4.2.2 How bonding and structure are	4.2.2.4 Properties of small molecules			
—	20	related to the properties of substances	4.2.2.5 Polymers			
Paper	e e		4.2.2.6 Giant covalent structures			
	5		4.2.2.7 Properties of metals and alloys			
1	th		4.2.2.8 Metals as conductors	1		
	4.2 Bonding, structure and the properties of matter		4.2.3.1 Diamond			
Paper	in the second se	4.2.3 Structure and bonding of carbon				
× i	ë	4.2.5 Structure and bonding of carbon	4.2.3.2 Graphite			
<u>e</u>	5 8		4.2.3.3 Graphene and fullerenes			
a)	4	4.2.4 Bulk and surface properties of		4.2.4.1 Sizes of	particles and th	heir properties
d		matter including nanoparticles		4.2.4.2 Use of r	anoparticles	
1		4.3.1 Chemical measurements,	4.3.1.1 Conservation of mass and balanced chemical equations			
		conservation of mass and the	4.3.1.2 Relative formula mass			
<u> </u>		quantitative interpretation of chemical	4.3.1.3 Mass changes when a reactant or product is a gas			
e	Ę.	equations	4.3.1.4 Chemical measurements		l	
Paper	쓑	equations				
B	2	4.3.2 Use of amount of substance in	4.3.2.2 Moles (HT ONLY)			
Ó.	e e		4.3.2.2 Amounts of substances in equations (HT ONLY)			
	đi.	relation to masses of pure substances	4.3.2.3 Using moles to balance equations (HT ONLY)			
1		relation to masses or pure substances	4.3.2.4 Limiting reactions (HT ONLY)			
L	4.3 Quantitative che mistry		4.3.2.5 Concentration of solutions			
a)	ð	4.3.3 Yield and atom economy of		4 2 2 1 Deccent	nne vield	
ŏ	4 S	chemical reactions		4.3.3.1 Percentage yield 4.3.3.2 Atom economy		
				4.3.3.2 Atom e	onomy	<u> </u>
Paper		4.3.4 Using concentrations of solutions in n				
		4.3.5 Use of amount of substance in relatio				
-			4.4.1.1 Metal oxides			
		4.4.1 Reactivity of metals	4.4.1.2 The reactivity series			
5		4.4.1 Reactivity of metals	4.4.1.3 Extraction of metals and reduction			
aper			4.4.1.4 Oxidation and reduction in terms of electrons (HT ONLY)	1		
	5		4.4.2.1 Reactions of acids with metals			
0	2					
┛	ž.		4.4.2.2 Neutralisation of acids and salt production			
-		4.4.2 Reactions of acids	4.4.2.3 Soluble salts		RP 1	
	Chemical changes		4.4.2.4 The pH scale and neutralisation			
er	6			4.4.2.5 Titratio	ns	RP2
			4.4.2.6 Strong and weak acids (HT ONLY)			
Q	4.4		4.4.3.1 The process of electrolysis			
Pal			4.4.3.2 Electrolysis of molten ionic compounds	1	1	
_		4.4.3 Electrolysis	4.4.3.3 Using electrolysis to extract metals	1		
		and a second sec			00.2	
1			4.4.3.4 Electrolysis of aqueous solutions		RP 3	
			4.4.3.5 Representation of reactions at electrodes as half equations (HT ONLY)			
a)	~	4.5.1 Exothermic and endothermic	4.5.1.1 Energy transfer during exothermic and endothermic reactions		RP 4	
õ	<u>و</u> ع		4.5.1.2 Reaction profiles			
Paper	4.5 Energy changes	reactions	4.5.1.3 The energy changes of reactions (HT ONLY)			
č	2 E		01	d batteries		
	4 0	4.5.2 Chemical cells and fuel cells		4.5.2.2 Fuel cel		

Chemistry spec Trilogy RP Chemistry RP

GCSE CHEMISTRY PAPER 2

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2 Paper 2 Paper Paper 2 2 Paper 2 Paper 2 Paper 2 Paper

of		4.6.1.1 Calculating rates of reactions				
	4.6.1 Data of consting	4.6.1.2 Factors with affect the rates of chemical reactions		RP 5	11	
11 C	4.6.1 Rate of reaction	4.6.1.3 Collision theory and activation energy			لك لك	
ge ter		4.6.1.4 Catalysts				
The rate and extent of chemical change		4.6.2.1 Reversible reactions				
		4.6.2.2 Energy changes and reversible reactions				
ate i		4.6.2.3 Equilibrium				
e ra	4.6.2 Reversible reactions and dynamic equilibrium					
£ ⊅		4.6.2.4 The effect of changing conditions on equilibrium (HT ONLY)				
4.6		4.6.2.5 The effect of changing concentration (HT ONLY)				
-		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 Carbon compounds as fuels and	4.7.1.1 Crude oil, hydrocarbons and alkanes				
		4.7.1.2 Fractional distillation and petrochemicals				
listry	feedstock	4.7.1.3 Properties of hydrocarbons				
		4.7.1.4 Cracking and alkenes				
e				e and formulae	of alkenes	
4.7 Organic chemistry	4.7.2 Reactions of alkenes and alcohols		4.7.2.2 Reaction	ns of alkenes		
	4.7.2 Reactions of alkenes and alconois		4.7.2.3 Alcohols			
and			4.7.2.4 Carboxy	lic acids		
4.7 0			4.7.3.1 Addition	polymerisation	2	
	4.7.3 Synthetic and naturally accurring			sation polymeri:		
	polymers			cids (HT ONLY)		
				oxyribonucleic		
		4.8.1.1 Pure substances				
	4.8.1 Purity, formulations and	4.8.1.2 Formulations				
	chromatography	4.8.1.3 Chromatography		RP 6		
		4.8.2.1 Test for hydrogen		NP 0		
55	4.8.2 Identification of common gases					
γla		4.8.2.2 Test for oxygen				
an		4.8.2.3 Test for carbon dioxide				
4.8 Chemical analysis		4.8.2.4 Test for chlorine				
en e	4.8.3 Indentification of ions by chemical and spectroscopic means		4.8.3.1 Flame to			
6			4.8.3.2 Metal h			
4.8			4.8.3.3 Carbona	ites		
			4.8.3.4 Halides			
			4.8.3.5 Sulfates		RP 7	
			4.8.3.6 Instrum			
			4.8.3.7 Flame e	mission spectro	scopy	
		4.9.1.1 The proportions of different gases in the atmosphere				
	4.9.1 The composition and evolution of	4.9.1.2 The Earth's early atmosphere				
the	the Earth's atmosphere	4.9.1.3 How oxygen increased				
of Le		4.9.1.4 How carbon dioxide decreased				
try She		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 atmospi	here			
atm	greenhouse gases	4.9.2.3 Global climate change				
56	0	4.9.2.4 The carbon footprint and its reduction				
4	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				
	erne erlett additional	4.5.3.2 Properties and enects of atmospheric polititans 4.10.1.1 Using the Earth's resources and sustainable development				
4.10 Using resources	4.10.1 Using the Earth's resources and	4.10.1.1 Using the Earth's resources and sustainable development 4.10.1.2 Potable water		RP 8		
	_			nr o		
	obtaining potable water	4.10.1.3 Waster water treatment				
		4.10.1.4 Alternative methods of extracting metals (HT ONLY)				
	4.10.2 Life cycle assessment and recycling	4.10.2.1 Life cycle assessment				
20	,	4.10.2.2 Ways of reducing the use of resources				
is n			4.10.3.1 Corrosion and its prevention			
101	4.10.3 Using materials		4.10.3.2 Alloys	ials		
4			4.10.3.3 Ceram	nd composites		
	4.10.4 The Haber process and the use of		4.10.4.1 The Ha			
	NPK fertilisers		4.10.4.2 Produc	tion and use of	NPK fertilisers	

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

Section	Chapter	Innir	Chemistry con	Trilogy RP	Chamisto - 90			4.6.1.1 Calculating rates of reactions			
	chapter	4.1.1.1 Atoms, elements and compounds	chenilistry spe	mogy RP	Chemistry RP	~		4.6.1.2 Factors with affect the rates of chemical reactions	R	P S	
8 B		4.1.1.2 Mixtures			-	t d	4.6.1 Rate of reaction	4.6.1.3 Collision theory and activation energy			
	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)	-	-	-	을 많		4.6.1.4 Catalysts			
Paper addite periodict		4.1.1.4 Relative electrical charges of subatomic particles			+	5 6		4.6.2.1 Reversible reactions			<u> </u>
	charge and isotopes	4.1.1.5 Size and mass of atoms				2 5					<u> </u>
	charge and locopes	4.1.1.6 Relative atomic mass				<u>e</u> 8		4.6.2.2 Energy changes and reversible reactions			
1 P2		4.1.1.7 Electronic structure	-			2 5	4.6.2 Reversible reactions and dynamic	4.6.2.3 Equilibrium			
		4.1.2.1 The periodic table			an ullibrium	4.6.2.4 The effect of changing conditions on equilibrium (HT ONLY)					
		4.1.2.2 Development of the periodic table			-	9	-	4.6.2.5 The effect of changing concentration (HT ONLY)			L
. t		4.1.2.3 Metals and non-metals			-	4		4.6.2.6 The effect of temperature changes on equilibrium (HT ONLY)			
1 Atomic Strue	4.1.2 The periodic table	4.1.2.4 Group 0						4.6.2.7 The effect of pressure changes on equilibrium (HT ONLY)			1
4 <u>8</u>		4.1.2.5 Group 1						4.7.1.1 Crude oil, hydrocarbons and alkanes			
i B		4.1.2.6 Group 7			1		4.7.1 Carbon compounds as fuels and	4.7.1.2 Fractional distillation and petrochemicals			
· [2			4.1.3.1 Compo	rison with Gro	un 1 elemente		feedstock	4.7.1.3 Properties of hydrocarbons			
1 4	4.1.3 Properties of tranistion metals		4.1.3.2 Typical			3		4.7.1.4 Cracking and alkenes			
		4.2.1.1 Chemical bonds				2			4.7.2.1 Structure	and formulas	of otherse
of matter		4.2.1.2 lonic bonding			-	je pe			4.7.2.2 Reactions		oj ukenes
i të	4.2.1 Chemical bonds, ionic, covalent and	4.2.1.3 Ionic compounds	-	-	-	ě.	4.7.2 Reactions of alkenes and alcohols			of dikenes	
1 <u>5</u>	metallic	4.2.1.4 Covalent bonding				E.			4.7.2.3 Alcohols		
8		4.2.1.5 Metallic bonding	-		-	5			4.7.2.4 Carboxylic		
		4.2.2.1 The three states of matter	1		1	5			4.7.3.1 Addition p		
e pe		4.2.2.2 State symbols					4.7.3 Synthetic and naturally occurring		4.7.3.2 Condensat		
cture and the pro	1	4.2.2.3 Properties of ionic compounds	1		1	1	polymers		4.7.3.3 Amino aci		
2 i š	4.2.2 How bonding and structure are	4.2.2.4 Properties of small molecules	1	1	1	1			4.7.3.4 DNA (dea	xyribonucleic	acid) and
- 2	related to the properties of substances	4.2.2.5 Polymers			-			4.8.1.1 Pure substances			
7 B		4.2.2.6 Giant covalent structures					4.8.1 Purity, formulations and	4.8.1.2 Formulations			
· 8		4.2.2.7 Properties of metals and alloys			-		chromatography	4.8.1.3 Chromatography		RP 6	
atru I		4.2.2.8 Metals as conductors						4.8.2.1 Test for hydrogen	-		<u> </u>
		4.2.3.1 Diamond			1	- 2					-
i 1	4.2.3 Structure and bonding of carbon	4.2.3.2 Graphite				<u> </u>	4.8.2 Identification of common gases	4.8.2.2 Test for oxygen			
L L	41.5 Structure and bonding of carbon	4.2.3.3 Graphene and fullerenes				an	-	4.8.2.3 Test for carbon dioxide			
9	4.2.4 Bulk and surface properties of		4.2.4.1 Sizes of	particles and	their properties	8		4.8.2.4 Test for chlorine			
4.2 Bonding.	matter includiog nonoparticles		4.2.4.2 Use of		inco properties	12			4.8.3.1 Flame test		
	4.3.1 Chemical measurements, conservation of mass and the quantitative interpretation of chemical equations	4.3.1.1 Conservation of mass and balanced chemical equations		1	-	ő			4.8.3.2 Metal hyd	froxides	1
•		4.3.1.2 Relative formula mass	++	+		3			4.8.3.3 Carbonate	8	
we chemistry		4.3.1.3 Mass changes when a reactant or product is a gas				4	4.8.3 Indentification of ions by chemical		4.8.3.4 Halides		
<u> इ</u>		4.3.1.4 Chemical measurements					and spectroscopic means		4.8.3.5 Sulfates		RP 7
- E	4.3.2 Use of amount of substance in relation to masses of pure substances	4.3.2.2 Moles (HT ONLY)							4.8.3.6 Instrumen	tal methods	
7 5		4.3.2.2 Amounts of substances in equations (HT ONLY)			-				4.8.3.7 Flame em		scony
· 8		4.3.2.3 Using moles to balance equations (HT ONLY)			-			4.9.1.1 The proportions of different gases in the atmosphere	4.6.3.7 Fighte chi	salon apeerro	(Copy
i i i		4.3.2.4 Limiting reactions (HT ONLY)					4.9.1 The composition and evolution of				
, in the second s		4.3.2.5 Concentration of solutions			-			4.9.1.2 The Earth's early atmosphere			
8	4.3.3 Yield and atom economy of		4.3.3.1 Percen	and winted		5	the Earth's atmosphere	4.9.1.3 How oxygen increased			
Paper	chemical reactions		4.3.3.1 Percen	conomu		ere ere		4.9.1.4 How carbon dioxide decreased			
6 I	4.2.4 Using supportantions of solutions in	mal (dm2 /UT ONLY)			-	56		4.9.2.1 Greenhouse gases			1
	4.3.4 Using concentrations of solutions in 4.3.5 Use of amount of substance in solo	noyans (n' over)				i i i i i i i i i i i i i i i i i i i	4.9.2 Carbon dioxide and methane as	4.9.2.2 Human activities which contribute to an increase in greenhouse gases in the atmosp	here		
	4.3.5 Use of amount of substance in relati	4.4.1.1 Metal oxides			+	e e	greenhouse gases	4.9.2.3 Global climate change			1
Paper 1		4.4.1.2 The reactivity series	-		-	σ		4.9.2.4 The carbon footprint and its reduction			
		4.4.1.3 Extraction of metals and reduction	-	-	-	4	4.9.3 Common atmospheric pollutants	4.9.3.1 Atmospheric pollutants from fuels			
		4.4.1.4 Oxidation and reduction in terms of electrons (HT ONLY)	-		+	1	and their sources	4.9.3.2 Properties and effects of atmospheric pollutants			
· · ·		4.4.2.1 Reactions of acids with metals	-		-			4.10.1.1 Using the Earth's resources and sustainable development			
1 🎽	전 전 4.4.2 Reactions of acids	4.4.2.2 Neutralisation of acids and salt production					4.10.1 Using the Earth's resources and	4.10.1.2 Osing the Earth's resources and sostainable development		P 8	
		4.4.2.3 Soluble salts		RP 1				4.10.1.2 Potable water 4.10.1.3 Waster water treatment		(P 8	<u> </u>
- i		4.4.2.4 The pH scale and neutralisation	-	NC 1	-	8	obtaining potable water				
		4.4.2.4 The priscale and neutralisation	4.4.2.5 Titratic	~	803	L L L L L L L L L L L L L L L L L L L		4.10.1.4 Alternative methods of extracting metals (HT ONLY)			L
		4.4.2.6 Strong and weak acids (HT ONLY)	4.4.2.5 110000	10	Nr.4	ă	4.10.2 Life cycle assessment and recycling	4.10.2.1 Life cycle assessment			1
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	6.6.2 Electrolysis	4.4.3.2 Electrolysis of molten ionic compounds	_								
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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

INCLUDING 'TRIPLE' (CHEMISTRY ONLY) TOPICS

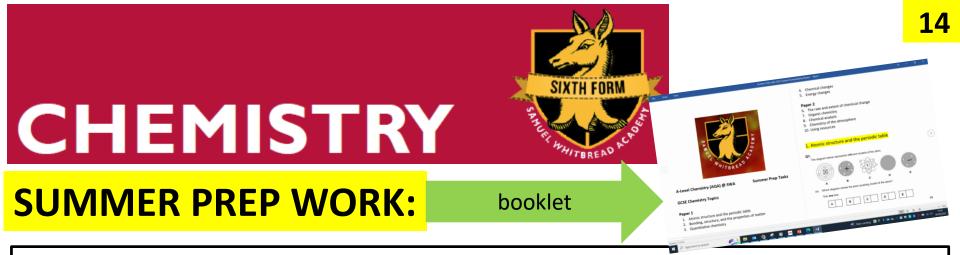
https://filestore.aq

a.org.uk/resources/

chemistry/specifica

tions/AQA-8462-

SP-2016.PDF



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-aqa/ http://www.rsc.org/learn-chemistry/wiki/A-Level Chemistry Revision http://www.docbrown.info/page13/page13.htm



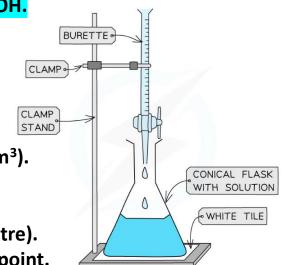


INDUCTION TASK COMBINED KIDS PAIR UP WITH TRIPLE AS YOU'VE NOT DONE TITRATIONS...watch a video if you're struggling

- 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

