BRIDGING THE GAP BETWEEN GCSE AND AS CHEMISTRY

Chemistry is a science of fundamental importance to you. Almost every aspect of your life depends on advances in chemistry, and further advances will shape the future. Chemistry is sometimes called "the central science" because understanding a range of other scientific disciplines depends on an understanding of basic and applied chemistry. For example, chemistry is required to study aspects of botany, geology, ecology, astronomy, pharmacology, medicine, forensics, materials science, and more.

Who will solve the problems caused by anthropogenic climate change, stop the next global pandemic, or clear the plastic from the oceans? Someone who understands A Level chemistry, that's who!

These links will give you some insight into the vast range of careers open to you if you study chemistry:

http://www.rsc.org/careers/future/employability-skills

http://www.rsc.org/careers/future/your-future-chemistry

Chemistry is a challenging subject at A Level, with some students finding it one of their hardest subjects. The step up from GCSE to AS Level can be difficult. Firstly, this is due to harder concepts being studied compared to GCSE, and secondly, the pace of learning is necessarily fast, so students are ready for their AS exams in May.

However, students who ask themselves, "What do I need to do to be successful?" tend to be more prepared to cope with the challenges of A Level study. These students tend to ask questions when they are unsure; extend their reading and learning beyond what's in the specification; revise regularly, etc., etc.

Students who were able to coast to success at GCSE will very quickly come unstuck if they adopt the same approach!

To help with getting off to a flying start in September this document provides:

- some challenging GCSE level questions - these are to refresh your memory on chemistry you have studied that may have faded with time over the summer break. ***You should attempt all these and hand them to your teacher in September.*** There will be a 'baseline' test at the start of the year – this work will help you prepare for it.
- some examples of AS level questions - these show the similarities in content to GCSE but also show the increasing level of depth that the course requires. You should have a go at these, you may be surprised by how many you can do. Answers provided in September.
- some exercises to introduce some more advanced chemistry concepts - these are exercises designed to get students thinking about new concepts. Chemistry is a subject that requires a logical approach and an ability to spot patterns in information. You may struggle with these tasks but they will prepare you for new concepts you will meet at AS, and hopefully make your life easier.
- some helpful reading/viewing on the internet - reading beyond the narrow scope of the specification is encouraged in all A Level subjects, and students that do so benefit greatly.

Please complete as much of this document as you can. Doing so will give you a realistic idea of the work required in September and beyond, and allow you to start thinking about your own approach to studying the subject.

You should show your completed work to your teachers in September. Your first lessons will build on your understanding of this work - the more you can show you've understood, the more your teachers can tailor their lessons to suit the class.

GCSE Chemistry vs. GCSE Combined Science

Taking a separate GCSE in chemistry is an advantage when studying A Level, as you will have met some ideas that are not covered by Combined Science. However, it does not put students who have done Combined Science at a massive disadvantage, as you will have done at least two-thirds of the same syllabus as GCSE Chemistry, and with the right approach it is easy to get up to speed. Essentially, all students are in the same boat, as everyone comes back after the summer break having forgotten everything!

Therefore, if when working through the GCSE style questions in this document do not worry too much if you find a question that you cannot answer.

The Course Structure

We offer the Edexcel 2015 A Level Chemistry course (9HC0). The specification can be found here:

https://qualifications.pearson.com/en/qualifications/edexcel-a-levels/chemistry-2015.html

The course is split into two. During Year 12 you will study the AS course (topics 1-10) and sit the AS exam (8CH0) at the end of the year. In Year 13, you will study the remaining topics (11-19), and sit the A Level exam, which examines the entire course (topics 1-19).

You will have two chemistry teachers, each of whom will teach one-half of the course. The typical split of topics is shown in the table below. The table also contains a brief description of the content of each topic and its relationship to your GCSE knowledge, and how you can prepare before each topic. This is a minimum suggested amount of preparation - you can, of course, do more.

TEACHER 1	TEACHER 2
1 ATOMIC STRUCTURE & THE PERIODIC TABLE • A much more sophisticated model of the atom than that met at GCSE. • Prepare by reading about the model of the atom used at A Level (online).	**5 FORMULAE, EQUATIONS & AMOUNTS OF SUBSTANCE** • Very similar to the calculations met at GCSE but more advanced, with a good understanding of moles vital. • Prepare by practising GCSE calculation questions.
2 BONDING & STRUCTURE • A much more sophisticated model of bonding than that met at GCSE, which tackles deviation from ionic and covalent models, more detail on intermolecular forces, and looks at predicting the shapes of molecules. • Prepare by revising GCSE bonding and ensuring you know the *similarities* between each type of bonding.	**3 REDOX I** • Building on GCSE understanding of reduction and oxidation but with a more quantitative approach. • Prepare by: making sure you know what reduction and oxidation are; complete the related exercise in this document.
4 INORGANIC CHEMISTRY & THE PERIODIC TABLE • A detailed look at the chemistry of Groups 2 and 7. Includes lots of ideas from topics 1, 2 & 3. • Prepare by reviewing topics 1-3 before starting.	**6 ORGANIC CHEMISTRY I** • A look at the chemistry of alkanes, alkenes, alcohols and halogenoalkanes. Goes well beyond the GCSE course. Organic chemistry will make up a very large portion of the full course A Level course. • Prepare by: researching the names of families of organic compounds; find out how to name organic compounds using the IUPAC naming system.
8 ENERGETICS I • Some similarities to GCSE knowledge, e.g. energy change = m x c x ΔT, but also includes more theoretical work and calculations. • Prepare by revising bond energy calculations from GCSE.	**7 MODERN ANALYTICAL TECHNIQUES I** • Interpreting mass and infrared spectra. • Prepare by reading about IR and mass spectroscopy.
9 KINETICS I • Very similar to the content studied at GCSE. • Prepare by revising the rates topic from GCSE.	**10 EQUILIBRIUM I** • Very similar to the content studied at GCSE. • Prepare by revising the equilibrium topic from GCSE.

CHALLENGING GCSE LEVEL QUESTIONS

1. Choose from the following elements to answer the questions.

aluminium
carbon
hydrogen
iron
magnesium
nitrogen
oxygen
sodium
vanadium

Each element may be used once, more than once or not at all. Which element:

(i) is a catalyst in the Haber process,
..... [1]
(ii) makes up 79% of dry air,
..... [1]
(iii) can be formed when hydrocarbons are cracked,
..... [1]
(iv) forms aqueous ions with a 2+ charge which give a green precipitate when added to aqueous ammonia,
..... [1]
(v) has an atom with only three electrons in its outer shell?
..... [1]

2. Complete the table to show the number of electrons and neutrons in the calcium atom and in the nitride ion. [4]

	number of electrons	number of neutrons
^{41}K		
$^{15}N^{3-}$		

3. Sodium chloride, NaCl, and magnesium chloride, $MgCl_2$, are both ionic compounds.
a) Describe the arrangement of the ions and the type of attractive forces between the ions in solid magnesium chloride. [2]

.....

.....

b) Explain why solid magnesium chloride does not conduct electricity but aqueous magnesium chloride does conduct. [2]
.....

.....

(c) Draw two diagrams showing the electronic configuration of a magnesium ion and of a chloride ion. [2]

(d) Chlorine and hydrogen are manufactured by the electrolysis of concentrated aqueous sodium chloride. Chlorine is released at the positive electrode and hydrogen is released at the negative electrode.
(i) Why are hydrogen ions and not sodium ions discharged at the negative electrode? [1]

.....

.....

(ii) Construct the equation for the reaction at the negative electrode. [1]

.....

(iii) Describe a test for chlorine. [2]

test .....

result .....

(e) (i) Give the formulae of the four ions present in aqueous sodium chloride. [1]

.....

(ii) Suggest why the solution becomes alkaline as the electrolysis proceeds. [2]

.....

.....

4. Fullerenes are solid forms of carbon. Fullerenes are found in soot. Soot also contains other forms of carbon. Fullerenes are soluble in liquid hydrocarbons such as heptane. The other forms of carbon in soot are insoluble in heptane.

Describe how you could obtain a pure sample of solid fullerene from soot. You should explain what occurs at each stage of the process.

You are provided with all common laboratory apparatus. [4]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

5. Metals have characteristic physical properties such as good electrical and thermal conductivity.

(a) Give two other physical properties that are characteristic of metals. [2]

.....

.....

(b) The table gives some observations about the reactions of four metals with water.

metal	observations
cerium	reacts slowly with cold water
iron	reacts with steam when red-hot
magnesium	reacts slowly with hot water
sodium	reacts rapidly with cold water

Put these metals in order of their reactivity with water. [1]

least reactive most reactive

(c) The equation for the reaction of iron with steam is shown.

$$3Fe + 4H_2O \rightarrow Fe_3O_4 + 4H_2$$

(i) Calculate the maximum mass of Fe_3O_4 that can be formed when 39.2 g of iron reacts with excess steam. [3]

.....

.....

.....

.....

Give your answer to three significant figures. Mass of Fe_3O_4 = ... g

(ii) Calculate the maximum volume of hydrogen, in dm^3, produced by this reaction, when measured at room temperature and pressure. [2]

.....

.....

.....

.....

volume of hydrogen = ... dm^3

(d) Pure iron can be obtained by the following reaction.

$$Fe(CO)_5 \rightarrow Fe + 5CO$$

Give one hazard associated with this reaction. [1]

.....

6. Dilute ethanoic acid reacts with sodium carbonate.
Sodium ethanoate, CH_3COONa, and two other compounds are formed.

(a) Construct the equation for this reaction. [2]

.....

(b) The reaction of dilute ethanoic acid with sodium carbonate is endothermic.
Explain in terms of bond making and bond breaking why this reaction is endothermic. [2]

.....

.....

.....

.....

(c) Ethanoic acid reacts with alcohols to form esters.
Give one use of esters. [1]

.....

7. The table shows the melting points and relative electrical conductivities of three elements from Period 3 of the Periodic Table.

property	element		
	magnesium	silicon	sulfur
melting point/ °C	649	1410	113
relative electrical conductivity	good conductor	poor conductor	does not conduct

(a) Use ideas of structure and bonding to explain:

(i) the difference in the melting points of magnesium and sulfur [2]

.....

.....

.....

.....

.....

(ii) the difference in the electrical conductivity of magnesium and sulfur. [2]

.....

.....

.....

.....

.....

(b) Silicon has a structure similar to diamond.

Explain why silicon has a high melting point. [2]

.....

.....

.....

.....

8. Dilute phosphoric acid, $H_3PO_4(aq)$, reacts with aqueous potassium hydroxide to make potassium phosphate.

$$H_3PO_4(aq) + 3KOH(aq) \rightarrow K_3PO_4(aq) + 3H_2O(l)$$

A student titrates 25.0 cm^3 of $H_3PO_4(aq)$ with 0.200 mol/dm^3 KOH(aq).
12.5 cm^3 of KOH(aq) is required to react exactly with the $H_3PO_4(aq)$.
Calculate the concentration of the $H_3PO_4(aq)$.

.....

.....

.....

.....

.....

.....

.....

.....

concentration of $H_3PO_4(aq)$ = ... mol/dm^3

<u>AS CHEMISTRY EXAM QUESTIONS</u> - see how many of these you can answer

1. Calculate the total number of **ions** in 7.41 g of calcium hydroxide, $Ca(OH)_2$.

The relative formula mass of calcium hydroxide is 74.1 g mol^{-1}.

The Avogadro constant is 6.0×10^{23} mol^{-1}.

[ ] A 6.0×10^{22}

[ ] B 1.2×10^{23}

[ ] C 1.8×10^{23}

[ ] D 3.0×10^{23}

2. 100 cm^3 of hydrogen is mixed with 25 cm^3 of oxygen at a temperature of 150 °C. The gases react as shown in the equation below:

$$2H_2(g) + O_2(g) \rightarrow 2H_2O(g)$$

The total volume of gas present at the end of the reaction is

[ ] A 50 cm^3

[ ] B 100 cm^3

[ ] C 125 cm^3

[ ] D 150 cm^3

3. An excess of copper(II) oxide is mixed with 40.0 cm^3 of 2.50 mol dm^{-3} hydrochloric acid.

$$CuO(s) + 2HCl(aq) \rightarrow CuCl_2(aq) + H_2O(l)$$

a) If the mass of copper(II) chloride produced is 5.50 g, what is the percentage yield of copper(II) chloride?

[ ] A 81.8%

[ ] B 67.2%

[ ] C 40.9%

[ ] D 20.4%

b) The ionic equation for the reaction is

[ ] A $Cu^{2+}(s) + 2Cl^-(aq) \rightarrow CuCl_2(aq)$

[ ] B $CuO(s) + 2H^+(aq) \rightarrow Cu^{2+}(aq) + H_2O(l)$

[ ] C $CuO(s) + 2H^+(aq) + 2Cl^-(aq) \rightarrow Cu^{2+}(Cl^-)_2(aq) + H_2O(l)$

[ ] D $CuO(s) + 2Cl^-(aq) \rightarrow CuCl_2(aq) + O^{2-}(l)$

c) Some facts about copper(II) chloride are given below.

Which of these gives the best evidence that the bonding in copper(II) chloride is ionic?

[ ] A It has a melting temperature of 620 °C.

[ ] B It does not conduct electricity as a solid.

[ ] C It decomposes before reaching its boiling temperature.

[ ] D In the electron density map, there are no contour lines around more than one nucleus.

4. A trend going down Group 1 is that the

[ ] A first ionisation energy of the element decreases.

[ ] B lattice energy of the chloride becomes more negative.

[ ] C radius of the atom decreases.

[ ] D melting temperature of the element increases.

5. Which of these compounds would **not** produce a colour change when heated with acidified sodium dichromate(VI) solution?

[ ] A butan-1-ol

[ ] B butan-2-ol

[ ] C butanal

[ ] D butanone

6. This question is about the equilibrium reaction between hydrogen and carbon dioxide.

$$H_2(g) + CO_2(g) \rightleftharpoons H_2O(g) + CO(g) \qquad \Delta H^{\ominus} = +40 \text{ kJ mol}^{-1}$$

What effect would the following changes have on the rate of reaction and the yield of carbon monoxide?

a) **Increase** in temperature

	Rate	**Yield of CO**
[ ] A	increase	increase
[ ] B	increase	decrease
[ ] C	increase	no change
[ ] D	no change	decrease

b) **Increase** in pressure

	Rate	**Yield of CO**
[ ] A	increase	increase
[ ] B	increase	decrease
[ ] C	increase	no change
[ ] D	no change	no change

7. Which one of the following substances forms when a few drops of concentrated sulfuric acid is added to sodium chloride?

[ ] A H_2O

[ ] B Cl_2

[ ] C $NaHSO_4$

[ ] D SO_2

8. Pentan-1-ol is less soluble than ethanol in water. The best explanation for this is that

[ ] A pentan-1-ol molecules cannot form hydrogen bonds with water molecules, but ethanol molecules can.

[ ] B London forces are stronger between pentan-1-ol molecules than between ethanol molecules.

[ ] C carbon-carbon bonds are stronger in pentan-1-ol than in ethanol

[ ] D permanent dipole forces are stronger in pentan-1-ol than in ethanol

9. 25.00 cm^3 of 1.00 mol dm^{-3} sulfuric acid is fully neutralized by 50.00 cm^3 of 1.00 mol dm^{-3} sodium hydroxide.
(a) What is the concentration of sodium sulfate solution produced by the reaction, in mol dm^{-3}?

[ ] A 1.00
[ ] B 0.67
[ ] C 0.50
[ ] D 0.33

10. An experiment was carried out to measure the enthalpy change of the following reaction.

$$NaOH(aq) + HCl(aq) \rightarrow NaCl(aq) + H_2O(l)$$

50cm^3 of hydrochloric acid was mixed with 50 cm^3 of sodium hydroxide solution.

Each solution contained 0.10 mol solute. The temperature rise was 12 °C.

Energy transferred (J) = mass of solution × 4.2 × change in temperature

Assume the density of all solutions is 1.0 g cm^{-3}.

What is the enthalpy change of the reaction in kJ mol^{-1}?

[ ] A $-\frac{50 \times 4.2 \times 12}{0.1 \times 1000}$

[ ] B $-\frac{50 \times 4.2 \times 12}{0.2 \times 1000}$

[ ] C $-\frac{100 \times 4.2 \times 12}{0.1 \times 1000}$

[ ] D $-\frac{50 \times 4.2 \times 12}{0.1 \times 1000}$

INTRODUCTORY AS CHEMISTRY EXERCISES

ATOMIC STRUCTURE - Identify the element with the electron structure 2,8,3

Which element must have the (possibly slightly worrying) electron structure of 2,8,10,2?

Complete the table:

Atom	Protons	Neutrons	Mass number	Electron structure	Relative size
			17	2,6	
$^{22}_{10}Ne$					
		10	19		

Complete the table:

Ion	Protons	Electrons	Electron structure	Relative size
	11		2,8	
Al^{3+}				
	8	10		

Lithium has 2 isotopes:

	Relative mass	Percentage
$^{7}_{3}Li$	7.016	7.42
$^{6}_{3}Li$	6.015	92.58

What do you think the masses are relative to?

Calculate the average mass of a lithium atom

Rhenium also has 2 isotopes:

Mass number	Relative mass	Percentage
185	184.95	
187	186.96	

Rhenium atoms have, on average, a relative mass of 186.20.

Calculate (or estimate) the percentages of each isotope

In chemical reactions, only metal atoms lose electrons forming positive ions. However, any atom *can* lose electrons and form positive ions if you give it enough energy. A plasma is simply a mixture of positive ions and electrons that can result from heating a substance. Complete the table and deduce the energy needed for each process as "most", "middle" and "least"

Atom	Electron structure	Number of protons	Plasma formation	Energy required
chlorine			$Cl(g) \rightarrow Cl^{+}(g) + e^{-}$	
	2,8,8			
		2		

Explain the reasoning behind your deductions

REDOX CHEMISTRY

What are the patterns in these "oxidation numbers"?			
H_2SO_4	H	S	O
	+1	+6	-2
HNO_3	H	N	O
	+1	+5	-2
Na_2CO_3	Na	C	O
	+1	+4	-2
NH_4Cl	N	H	Cl
	-3	+1	-1
CH_3OH	C	H	O
	+2	+1	-2
SO_4^{2-}	S	O	
	+6	-2	
MnO_4^-	Mn	O	
	+7	-2	
N_2	N		
	0		
S_8	S		
	0		

Use these patterns to assign "oxidation numbers"			
H_3PO_4	H	P	O
HNO_2	H	N	O
NH_3	N	H	
H_2O	H	O	
$C_6H_{12}O_6$	C	H	O
NH_4^+	N	H	
H_2	H		
CH_3O^+	C	H	O
$S_2O_3^{2-}$	S	O	

The oxidation number of hydrogen ……

The oxidation number of oxygen ……

In an element ……

The sum of the oxidation numbers in a molecule……

The link between charge and oxidation number in an ion……

Write the oxidation numbers under each element. Identify which oxidation numbers decrease, stay the same or increase during the reaction

$Mg(s) + O_2(g) \rightarrow MgO(s)$

…… …… …… ……

$CH_4(g) + O_2(g) \rightarrow CO_2(g) + 2H_2O(l)$

…… …… …… …… …… …… …… ……

$2Na(s) + 2H_2O(l) \rightarrow 2NaOH(aq) + H_2(g)$

…… …… …… …… …… …… ……

$H_2(g) + Cl_2(g) \rightarrow 2HCl(g)$

…… …… …… ……

WRITING EQUATIONS

Balance these equations and indicate the type of reaction in each case:

$C_2H_6(g)$ + $O_2(g)$ → $CO_2(g)$ + $H_2O(l)$

$AgNO_3(aq)$ + $CuCl_2(aq)$ → $AgCl(s)$ + $Cu(NO_3)_2(aq)$

$CH_4(g)$ + $O_2(g)$ → $CO(g)$ + $H_2O(l)$

$CaCO_3(s)$ + $HNO_3(aq)$ → $Cu(NO_3)_2(aq)$ + $CO_2(g)$ + $H_2O(l)$

$K(s)$ + $H_2O(l)$ → $KOH(aq)$ + $H_2(g)$

$Sr(NO_3)_2(s)$ → $SrO(s)$ + $NO_2(g)$ + $O_2(g)$

$Fe^{2+}(aq)$ + $OH^-(s)$ → $Fe(OH)_2(s)$

$Mg(OH)_2(s)$ + $H^+(aq)$ → $Mg^{2+}(aq)$ + $H_2O(l)$

$Al(s)$ + $H_2O(l)$ + $OH^-(aq)$ → $Al(OH)_4^-(aq)$ + $H_2(g)$

Complete and balance these half equations:	Oxidation or reduction?
$Zn(s) \rightarrow Zn^{2+}(aq)$ + ……	
……$Br^- \rightarrow Br_2(l)$ + …….	
$Al(s) - 3e^- \rightarrow$ ……	
…… e^- + $Cl_2(g) \rightarrow$ …….	
…… + 3 $e^- \rightarrow Fe(s)$	
…… $OH^-(aq)$ - …… $e^- \rightarrow$ ……$H_2O(l) + O_2(g)$	
$Mn^{2+}(aq)$ + …… $H_2O(l) \rightarrow MnO_4^-(aq)$ + ……$H^+(aq)$ + …… e^-	
……e^- + ……$H_2O(l) + CrO_4^{2-}(aq) \rightarrow Cr^{3+}(aq)$ + …… OH^-	

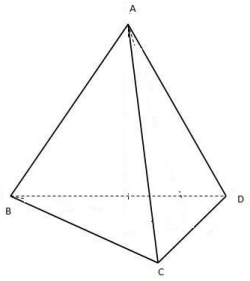
Write balanced equations for:
The complete combustion of propene:

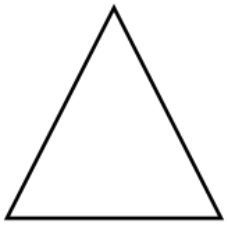
Cracking hexane into ethane and ethane:

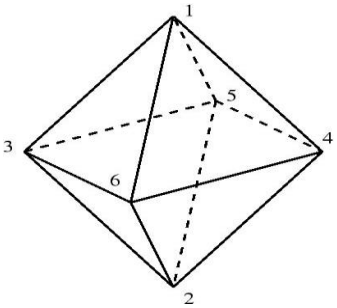
Thermal decomposition of lithium carbonate

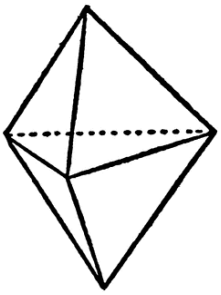
SHAPES OF MOLECULES

Name the shapes and indicate how many vertices it has:



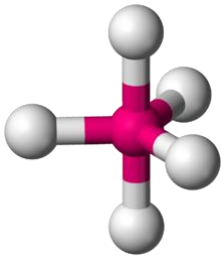


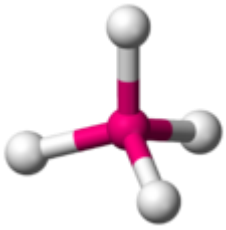


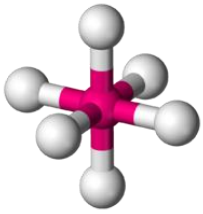


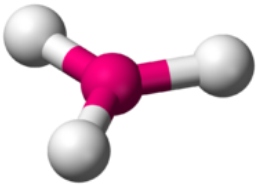
a …… b …… c …… d ……

Link the molecules to the shapes and suggest formulae of molecules that would have these shapes:



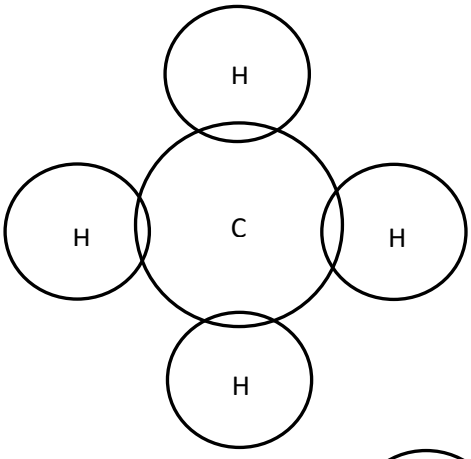


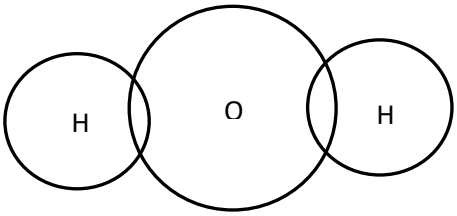


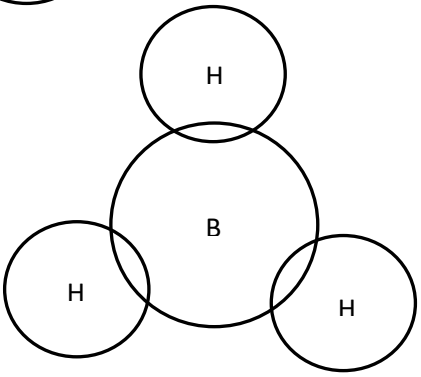


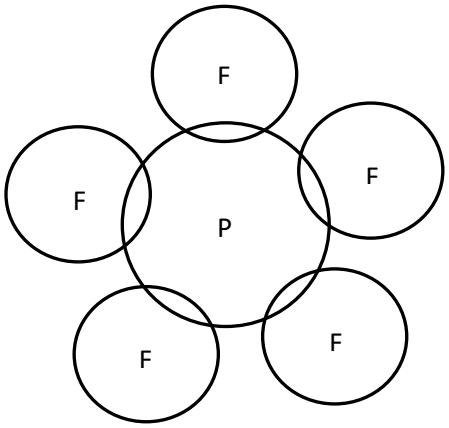
…… …… …… ……

Complete the dot / cross diagrams and count the number of electron pairs in the highest energy level of the central atom in each of these molecules:









Highlight the "bonding pairs" and "lone pairs" of electrons in different colours

COMPOUNDS & REACTIONS

	Name	Acid?	Base?	Alkali?	Salt?
$CuSO_4(s)$					
$HNO_3(aq)$					
$ZnO(s)$					
$CH_3COOH(aq)$					
$NaNO_3(s)$					
$NH_3(aq)$					
$H_2SO_4(aq)$					
$MgO(s)$					
$Cu(OH)_2(s)$					
$HCl(aq)$					
$NaOH(aq)$					
$FeCl_2(s)$					
$(NH_4)_2SO_4$					

An acid is…….

A base is……..

An alkali is…….

A salt is……..

Word: Potassium hydroxide + hydrochloric acid →

Symbol:

Word: Zinc + sulphuric acid →

Symbol:

Word: Sodium carbonate + nitric acid →

Symbol:

Word: Silver oxide + sulphuric acid →

Symbol:

(Ion charges to work out formulae: K^+ Zn^{2+} Na^+ Ag^+ OH^- O^{2-} Cl^- SO_4^{2-}

BONDING

Rearrange the table to make it plausible:

substance	Type of bonding	State at room temperature	Melting temperature/K	Electrical conductivity (solid)	Electrical conductivity (liquid)
phosphorus trichloride	ionic	solid	923	poor	poor
magnesium	simple covalent	solid	181	poor	poor
silicon carbide	simple covalent	liquid	1268	good	good
aluminium bromide	metallic	solid	371	poor	poor
sodium fluoride	giant covalent	solid	2973	poor	good

substance	Type of bonding	State at room temperature	Melting temperature/K	Electrical conductivity (solid)	Electrical conductivity (liquid)
phosphorus trichloride					
magnesium					
silicon carbide					
aluminium bromide					
sodium fluoride					

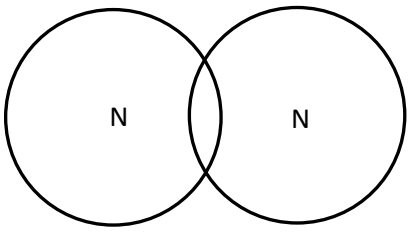
Complete the sentences:

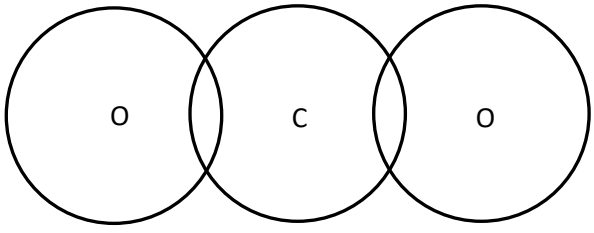
Ionic compounds are …….. at room temperature, with …… melting temperatures, due to the …….. forces of attraction between the ……

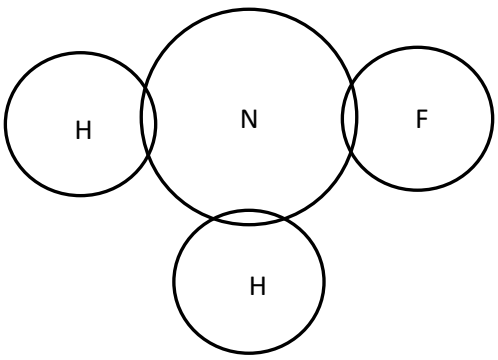
Simple covalent substances are gases, liquids or …… solids at room temperature. The bonds between the …….. are strong, but the forces between the …….. are ……..

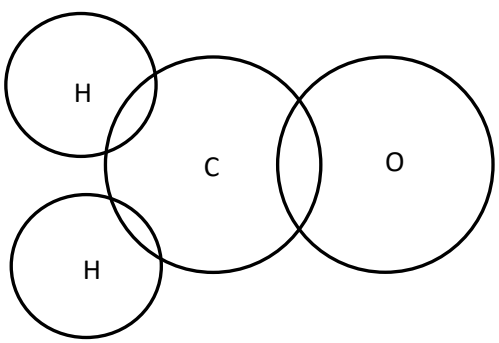
A …… structure consists of a …….. of positive ions surrounded by a “sea” of …….. electrons. These substances are good …….. as the electrons are free to ……

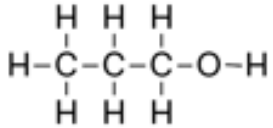
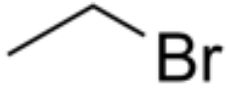
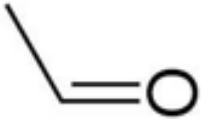
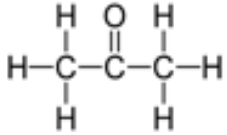
Draw dots and crosses to show the electrons in these molecules:









Homologous series / Name	Structural formula	Displayed formula	Skeletal formula
Alkane			
Propane			
Alkene	$CH_3CH=CH_2$		
			
Propan-1-ol			
Carboxylic acid	CH_3COOH		
Halogenoalkane			
Aldehyde	CH_3CHO		
Ethanal			
Propanone			
Ketone			

USEFUL READING/VIEWING

Below are selection of web links that would be a good way to start getting familiar with the AS Chemistry course, and the wider subject. You are not expected to read/watch everything below but it really wouldn't hurt!

Our A Level specification:

https://qualifications.pearson.com/en/qualifications/edexcel-a-levels/chemistry-2015.html

A really helpful website for understanding A Level chemistry concepts:

http://www.chemguide.co.uk/

A warning of the dangers of dabbling with chemistry:

http://www.dhmo.org/

The Royal Society of Chemistry's website:

http://www.rsc.org/

A series of videos on chemistry:

http://www.periodicvideos.com/

Doing interesting chemistry at home. (Don't try this at home!)

https://www.youtube.com/user/TheRedNile

Chemistry news:

https://www.chemistryworld.com/

Molecule of the month!

http://www.chm.bris.ac.uk/motm/motm.htm