YEAR 9 A- F – CHEMISTRY – II Term

WEEK 23 (31st Jan to 04th Feb)

Work Sent to the students through Group email/ Google classroom

Topic:– SC5a – Ionic Bonds

Resources: Text book, Worksheet, Boardworks, GCSE science free lesson video, power point.

Date	Lesson	Topic	Mode of Teaching	
31st Jan Sunday **(girls)**	6	**Learning Objective :** Explain how ionic bonds are formed by the transfer of electrons between atoms to produce cations and anions, including the use of dot and cross diagrams **Success Criteria:** • Describe the electron arrangements of sodium and chlorine. • Describe how an electron is transferred to chlorine from sodium to form two charged particles, called ions, that attract each other. • Know that compounds made from a metal and a non-metal are made from ions. • Use dot and cross diagrams to explain how ionic bonds are formed.	**Zoom**	PPT/Video on Ionic Bonds
01st Feb Monday **(boys)**	7			
01st Feb Monday **(girls)**	5	**Learning Objective :** • Recall that an ion is an atom or group of atoms with a positive or negative charge • Calculate the numbers of protons, neutrons and electrons in simple ions given the atomic number and mass number **Success Criteria:** • Define ion. • Explain the difference between an atom and an ion. • Calculate the protons, neutrons and electrons of an ion. • Draw the electronic structure of few ions. • Calculate the subatomic particles in simple ions using the atomic and mass number from the periodic table.	**Zoom**	PPT and Video on Ionic Bonds
01st Feb Monday– **(boys)**	8			
01st Feb Monday **(girls)**	6	**Learning Objective :** • Explain the formation of ions in ionic compounds from their atoms, limited to compounds of elements in groups 1, 2, 6 and 7 **Success Criteria:** • Distinguish that metals lose electrons to form positive ions, whereas non-metals gain electrons to form negative ions. • Predict that Group 1 metals form 1+ ions.	**GC**	Worksheet SC5a
03rd Feb Wednesday – **(boys)**	1			

		• Draw diagrams to explain how Na donates / transfers electron to Cl, so both achieve noble gas electronic structure. • Reason out why the noble gases are unreactive.		

Homework : Do Questions S1 and E1 on page 35 of the textbook in your note book

YEAR 10 B/C/F–CHEMISTRY (Boys)

WEEK 23 (31st Jan to 4th Feb)

Work Sent to the students through Google classroom
Topic: Electrolysis
Resources: Text book, Worksheet, power point.

Date	Lesson	Topic	Mode of Teaching	
31/1/2021 Sunday 1/2/2021 Monday	0 1&2	**Learning Objective:** Core Practical -Investigate the change in pH on adding powdered calcium hydroxide or calcium oxide to a fixed volume of dilute hydrochloric acid. **Learning Outcome:** • Recall pH. • Analyse that a neutral solution has a pH of 7 and that acidic solutions have lower pH values and alkaline solutions higher pH values. • Observe the change in pH during the addition of powdered calcium hydroxide or calcium oxide to a fixed volume of dilute hydrochloric acid. • Plot a graph with the data of results obtained. • Analyse the graph obtained.	**Google Meet**	Teacher shows a video on the change in pH on adding powdered calcium hydroxide or calcium oxide to a fixed volume of dilute hydrochloric acid. Students complete the practical sheets.
3/2/2021 Wednesday	4	**Learning Objective:** To reinforce the concepts such as ionic bond, ionic Lattice and properties of ionic compounds. **Learning outcome:** • Explain the formation of ions in ionic compounds from their atoms. • Deduce the formulae of ionic compounds • Explain the structure and properties of an ionic compound	**GC**	Instruction will be given in the Google classroom to complete the task.

Home work: Solve exam style questions : (Pg 63)

YEAR 10 A/D/E–CHEMISTRY (Girls)

WEEK 23 (31st Jan to 4th Feb)

Work Sent to the students through Google classroom
Topic: Electrolysis
Resources: Text book, Worksheet, power point.

Date	Lesson	Topic	Mode of Teaching	
31/1/2021 Sunday	3	**Learning Objective:** To reinforce the concepts such as ionic bond, ionic Lattice and properties of ionic compounds. **Learning outcome:** • Explain the formation of ions in ionic compounds from their atoms. • Deduce the formulae of ionic compounds • Explain the structure and properties of an ionic compound.	**GC**	Instruction will be given in the Google classroom to complete the task
3/2/2021 Wednesday 4/2/2021 Thursday	3 2&3	**Learning Objective:** Core Practical -Investigate the change in pH on adding powdered calcium hydroxide or calcium oxide to a fixed volume of dilute hydrochloric acid. **Learning Outcome:** • Recall pH. • Analyse that a neutral solution has a pH of 7 and that acidic solutions have lower pH values and alkaline solutions higher pH values. • Observe the change in pH during the addition of powdered calcium hydroxide or calcium oxide to a fixed volume of dilute hydrochloric acid. • Plot a graph with the data of results obtained. • Analyse the graph obtained.	**Zoom**	Teacher shows a video on the change in pH on adding powdered calcium hydroxide or calcium oxide to a fixed volume of dilute hydrochloric acid. Students complete the practical sheets.

Home work: Solve exam style questions : (Pg 63)

YEAR 11 A/D/E – CHEMISTRY (Girls)

WEEK 23 (31st January – 4th February)

Work Sent to the students through Zoom Learning Platform / Google classroom

Topic:– SC22a: Alkanes and alkenes
SC22b: Reactions of alkanes and alkenes

Resources: Text book,Worksheet, Boardworks powerpoint

Date	Topic	
31.01.21 Sunday 8th period **Mode of Teaching**: Zoom	**Learning Objective:** Recall the formulae of molecules of the alkanes, methane, ethane, propane and butane, and draw the structures of these molecules, showing all covalent bonds. Explain why the alkanes are saturated hydrocarbons **Learning Outcome:** Explain alkanes and alkenes as an example homologous series . : that have the same general formula, show similar chemical properties, show a gradation in their physical properties and differ by a CH_2 unit.	Teacher uses powerpoint presentation with interactive questions
01.02.21 Monday 4th period **Mode of Teaching:** Zoom	**Learning Objective:** Recall the formulae of molecules of the alkenes, ethene, propene, butene, and draw the structures of these molecules, showing all covalent bonds. Explain why the alkenes are unsaturated hydrocarbons, describing that their molecules contain the functional group C=C **Learning Outcome:** Identify general formula for homologous series of hydrocarbons written in the form C_nH_n beginning with alkenes, followed by alkanes Define terms saturated and unsaturated as applied to alkanes and alkenes.	Teacher uses powerpoint presentation with interactive questions
03.02.21 Wednesday 8th period **Mode of Teaching:** Zoom	**Learning Objective:** Recall the addition reaction of ethene with bromine, showing the structures of reactants and products, and extend this to other alkenes. Explain how bromine water is used to distinguish between alkanes and alkenes. **Learning Outcome:** Plan an experiment to determine the presence of C=C in a variety of organic compounds using bromine water.	Teacher uses powerpoint presentation with interactive questions
04.02.21 Thursday 5th Period **Mode of Teaching:** Zoom	**Learning Objective:** Describe how the complete combustion of alkanes and alkenes involves the oxidation of the hydrocarbons to produce carbon dioxide and water. **Learning Outcome:** Represent chemical reactions by word equations Represent some chemical reactions by balanced equations, including state symbols.	Teacher uses powerpoint presentation with interactive questions
04.02.21 Thursday 6th Period **Mode of Teaching:** GC	**Learning Objective:** To answer the questions, on Alkanes, alkenes and their reactions, in the worksheet. **Learning outcome:** Students will be able to reinforce the concepts learned in the previous lesson by answering the questions in the worksheet.	Worksheet assigned through GC.

HOMEWORK: Complete the textbook Qs SC22a: Alkanes and alkenes and SC22b: Reactions of alkanes and alkenes.(Pg. 172 – 175)

YEAR 11 B/C/F – CHEMISTRY (Boys)

WEEK 23 (31st January – 4th February)

Work Sent to the students through Zoom Learning Platform / Google classroom

Topic:– SC22a: Alkanes and alkenes
SC22b: Reactions of alkanes and alkenes

Resources: Text book, Worksheet, Board works power point

Date	Topic	
31.01.21 Sunday 1st Period **Mode of Teaching:** Zoom	**Learning Objective:** Recall the formulae of molecules of the alkanes, methane, ethane, propane and butane, and draw the structures of these molecules, showing all covalent bonds. Explain why the alkanes are saturated hydrocarbons **Learning Outcome:** Explain alkanes and alkenes as an example homologous series . : that have the same general formula, show similar chemical properties, show a gradation in their physical properties and differ by a CH_2 unit.	Teacher uses powerpoint presentation with interactive questions.
31.01.21 Sunday 2nd Period **Mode of Teaching:** Zoom	**Learning Objective:** Recall the formulae of molecules of the alkenes, ethene, propene, butene, and draw the structures of these molecules, showing all covalent bonds. Explain why the alkenes are unsaturated hydrocarbons, describing that their molecules contain the functional group C=C **Learning Outcome:** Identify general formula for homologous series of hydrocarbons written in the form C_nH_n beginning with alkenes, followed by alkanes Define terms saturated and unsaturated as applied to alkanes and alkenes.	Teacher uses powerpoint presentation with interactive questions
01.02.21 Monday 3rd Period **Mode of Teaching:** Zoom	**Learning Objective:** Recall the addition reaction of ethene with bromine, showing the structures of reactants and products, and extend this to other alkenes. Explain how bromine water is used to distinguish between alkanes and alkenes. **Learning Outcome:** Plan an experiment to determine the presence of C=C in a variety of organic compounds using bromine water.	Teacher uses powerpoint presentation with interactive questions
02.02.21 Tuesday 7th Period **Mode of Teaching:** Zoom	**Learning Objective:** Describe how the complete combustion of alkanes and alkenes involves the oxidation of the hydrocarbons to produce carbon dioxide and water. **Learning Outcome:** Represent chemical reactions by word equations Represent some chemical reactions by balanced equations, including state symbols.	Teacher uses powerpoint presentation with interactive questions
04.02.21 Thursday 4th Period **Mode of Teaching:** GC	**Learning Objective:** To answer the questions, on Alkanes, alkenes and their reactions, in the worksheet. **Learning outcome:** Students will be able to reinforce the concepts learned in the previous lesson by answering the questions in the worksheet.	Worksheet assigned through GC.

HOMEWORK: Complete the textbook Qs SC22a: Alkanes and alkenes and SC22b: Reactions of alkanes and alkenes.(Pg. 172 – 175)

YEAR 11 G/H–CHEMISTRY (IGCSE)

WEEK 23 (31st January to 4th February)

Work Sent to the students through Google classroom/Zoom Learning Platform

Unit 4– Topic: Crude Oil

Resources: Text book, Worksheet, IGCSE science free lesson video, power point.

Date	**Lesson**	**Topic**	**Mode of Teaching**	
31.1.2021 Sunday	1 11**H** 6 **11G**	**Learning Objective**: know that crude oil is a mixture of hydrocarbons Describe how the industrial process of fractional distillation separates crude oil into fractions. **Learning Outcome:** Discuss the origin of crude oil and its formation. Describe how the industrial process of fractional distillation separates crude oil into fractions	**Google Meet** **zoom**	Teacher uses PowerPoint to reinforce concepts of fractional distillation. Interactive questions to assess the concept of the crude oil formation.
1.2.2021 Monday	2 **11H** 5 **11G**	**Learning Objective**: Know the names and uses of the main fractions obtained from crude oil: refinery gases, gasoline, kerosene, diesel, fuel oil and bitumen. **Learning Outcome:** Know the different fractions of crude oil and list their uses.	**Google Meet** **zoom**	Teacher uses a PowerPoint presentation/video that contains interactive questions on the uses of different fractions.
2.2.2021 Tuesday	3 **11H** 1 **11G**	**Learning Objective**: know the trend in color, boiling point and viscosity of the main fractions **Learning Outcome:**Explain how the physical properties of hydrocarbons change with molecule size.	**Google Meet** **zoom**	Teacher uses a PowerPoint presentation/ video to explain the properties of hydrocarbons.

	4**11H** 2 **11G**	**Learning Objectiv**e: know that a fuel is a substance that, when burned, releases heat energy know the possible products of complete and incomplete combustion of hydrocarbons with oxygen in the air **Learning Outcome:** Predict products of complete and incomplete combustion of hydrocarbons with oxygen in the air	**Google Meet** **zoom**	Instruction will be given in the GC room to complete the textbook and worksheet questions.
04.02.21 Thursday	5 **11H** 4 **11G**	**Learning Objectiv**e: understand why carbon monoxide is poisonous, in terms of its effect on the capacity of blood to transport oxygen references to hemoglobin are not required **Learning Outcome:** Explain the effect of carbon monoxide on the capacity of blood to transport oxygen	**Google Meet** **zoom**	Teacher uses PowerPoint presentation to explain the poisonous nature of carbon monoxide.

HOMEWORK: Complete the textbook Questions of fractional distillation.

YEAR 12 G /D – CHEMISTRY

WEEK 23 (31st January to 4th February 2021)

Work Sent to the students through Zoom Learning Platform / Google classroom

Topic:– The effect of changes in conditions on equilibrium composition, Equilibrium constant and reversible reactions in industry.

Resources: Text book, Worksheet file, video, power point presentations.

Date	**Topic**	**Mode of Teaching**	
1.2.2021 Monday 3 **12D** 2.2.2021 Tuesday 1 **12G**	**Learning Objective** 1.To predict and justify the qualitative effect of a change in temperature, concentration or pressure on a homogeneous system in equilibrium. 2.Evaluate data to explain the necessity, for many industrial processes, to reach a compromise between the yield and the rate of reaction. **Learning Outcome:** • Use the Le Chatelier principle to predict the observations and inferences for the equilibrium reactions i) iodine(I) chloride reacting with chlorine to form iodine(III) chloride, or ii) $N_2O_4 \rightarrow 2NO_2$ • Justify the conditions used for the -Haber process -Contact process to get the maximum yields and high rate of reaction in terms of enthalpy change and entropy.	Zoom	Teacher uses powerpoint presentation to explain the qualitative effect of a change in temperature, concentration or pressure on a homogeneous system in equilibrium.
2.2.2021 Tuesday 2 **12G** 7 **12D**	**Learning Objective:** To deduce an expression for *K*c, for homogeneous and heterogeneous systems, in terms of equilibrium concentrations. **Learning outcome:** Find the relationship between equilibrium concentrations K_c and the balanced equation, given data for equilibrium concentrations and K_c for a range of equilibria.	Zoom	Teacher uses powerpoint presentation that contains interactive questions .
3.2.2021 Wednesday 2 **12G** 4.2.2021 Thursday **7 12D**	**Learning Objective:** To answer the questions, on the effect of changes in conditions on equilibrium composition and equilibriur constant, in the worksheet. **Learning outcome:** Students will be able to reinforce the concepts learned in the previous lesson by answering the questions in the worksheet.	GC	Instruction will be given in the Google classroom to complete the Worksheet.

HOMEWORK: Complete the textbook questions on page 275

YEAR 12 D/G– CHEMISTRY (TERM II)

WEEK 23 (31st January to 4th February)

Work Sent to the students through Zoom Learning Platform / Google classroom
Topic 4 – INORGANIC CHEMISTRY AND THE PERIODIC TABLE

Resources: Text book, Worksheet, Video, Board works, power point

Date	Topic	
02.02.21 Tuesday 8 **12D** 01.02.21 Monday 6 **12G** **Mode of Teaching –** **ZOOM**	**Learning Objective:** Know that the mole (mol) is the unit for amount of a substance Be able to use the Avogadro constant, L, (6.02×10^{23} mol^{-1}) in calculations **Learning Outcome: students will be able to:** Define mole. Relate mole to Relative molecular mass. Review that 1mol of any substance contains $6.02x10^{23}$ atoms/molecules/ions Solve calculations based on simple conversion of moles into masses and vice versa	Teacher uses power point to show rules to recap basics of organic linking to GCSE level. Lesson will be developed with many examples. Some common mistakes and guidance from first term examinations will be discussed.
01.02.21 Monday 7- **12G** 03.02.21 Wednesday 7- **12D** **Mode of Teaching –** **ZOOM**	**Learning Objective:** Know that the molar mass of a substance is the mass per mole of the substance in g mol^{-1} Know what is meant by the terms 'empirical formula' and 'molecular formula' **Learning Outcome: students will be able to:** Define: relative atomic mass, molar mass **Predict** the use of parts per million in finding out carbon dioxide emissions in parts per million Predict the formula of the compound/molecule and gives the ratio in which the atoms are present. Work **few** examples of calculating empirical formulae and further to calculate molecular formulae Use of same calculation to calculate number of moles of water of crystallisation attached. Identifies the trend as we go down a group based on polarization of cations.	Teacher uses power point presentation and videos to explain the concept of concentration in various units. Teacher uses worksheet that contains interactive questions, to explain the term ppm.

03.02.21 Wednesday **8- 12D** **1-12G** **Mode of Teaching –** **ZOOM**	**Learning Objective:** of calculating empirical formulae and further to calculate molecular formulae. Use the equation PV =nRT to calculate for gases and volatile liquids. **Learning Outcome: students will be able to:** Be able to use experimental data to calculate i) empirical formulae ii) molecular formulae including the use of *PV = nRT* for gases and volatile liquids *Calculations of empirical formula may involve composition by mass or percentage composition by mass data*.	Teacher uses questions from various past papers. Teacher uses worksheet that contains interactive questions, to explain quantitative chemistry.

HOMEWORK: Solve exam style questions from text book.

YEAR 13 A /B –CHEMISTRY (TERM II)

WEEK 23 (31st January to 4th February)

Topic: further organic chemistry.

Carboxylic acids and their chemical properties.

Work sent to the students through Google classroom / Zoom Learning Platform

Resources: Text book, Worksheets, video, power point presentations.

Date	**Topic**	
31.01.21 Sunday **1-13A** **4-13B** **Mode of Teaching –** **ZOOM**	**Lesson Objective:** Identify the acyl chloride and their reaction. Comparison of reactivity of acyl chloride with carboxylic acids. **Success Criteria: students will be able to:** Predict the general formula for simple acyl chlorides, structural formula of simple carboxylic derivatives with up to six carbons in the main chain Use IUPAC rules to name simple carboxylic acids derivatives with up to **three**/six carbon atoms in the main chain.	Teacher uses power point presentation that contains interactive questions. Students solve the worksheet file questions.

Sunday 31.01.21 **2-13 A** 02.02.21 Tuesday **2-13B** **Mode of Teaching – ZOOM**	**Lesson Objective:** understand the reactions of carboxylic acids with: i phosphorus(V) chloride (phosphorus pentachloride) ii alcohols in the presence of an acid catalyst **Success Criteria: students will be able to:** Write balanced chemical reactions with appropriate conditions , various methods of preparation of acyl chlorides from carboxylic acids . Identify physical properties of acid chlorides.	Teacher uses power point presentation that contains interactive questions. Students solve the worksheet file questions.
Wednesday 03.02.21 **4- 13A** **2-13B** **Mode of Teaching – ZOOM**	**Lesson Objective:** understand the reactions of acyl chlorides with: i water ii alcohols iii concentrated ammonia iv amines **Success Criteria: students will be able to:** Write equations and observations for the reaction of acyl chlorides eg CH_3COCl -with water to form acids, CH_3COOH & HCl - with CH_3OH to form ester, CH_3COOCH_3 & HCl -with NH_3 to form amide, CH_3CONH_2 & HCl -with CH_3NH_2 to form amide $CH_3CONHCH_3$ & HCl	Teacher uses power point presentation that contains interactive questions that helps to predict the products of reactions. Students solve the worksheet file questions .

Homework : Solve worksheet file questions and text book.

YEAR 13 A/B– CHEMISTRY

WEEK 23 (31st January to 4th February)

Work Sent to the students through Zoom Learning Platform / Google classroom
Topic:– Lattice Energy and Born Haber Cycle

Resources: Text book, Worksheet, Video , Board works , power point

Date	Topic	
31.01.21 Sunday 4 **13A** 5 **13B** **Mode of Teaching – ZOOM**	**Learning Objective:** Define lattice energy. Define the terms- enthalpy of atomization and electron affinity. Draw Born – Haber cycle **Learning Outcome:** Understand that lattice energy provides a measure of the measure of the strength of ionic bonding. Understand that Born Haber cycle is the application of Hess's Law.	Teacher uses textbook questions and power point to introduce the concept of Born Haber cycle.
31 .01.21 Sunday 8 **13B** 3.02.21 Wednesday 5 **13A** **Mode of Teaching – ZOOM**	**Learning Objective:** Understand the difference between standard enthalpy change of atomization and enthalpy change of atomization. Construct Born Haber cycle of sodium chloride and magnesium chloride **Learning Outcome:** Explain the standard conditions. Explain all the stages in the Born Haber cycle of sodium chloride and magnesium chloride.	Teacher uses PowerPoint presentation and video to demonstrate the factors affecting lattice energy. Teacher uses worksheet that contains interactive questions, to explain the different steps of Born Haber cycle.
2.02.21 Tuesday 1 **13B** 3.02.21 Wednesday **6 13A** **Mode of Teaching – ZOOM**	**Learning Objective:** Calculation of lattice energy of - Sodium chloride , magnesium chloride calcium oxide, aluminium oxide, lithium oxide . **Learning Outcome:** Label all the stages in the Born Haber cycle of Sodium chloride , magnesium chloride calcium oxide, aluminium oxide, lithium oxide . Solve problems related to lattice energy	Instructions will be given to complete textbook questions. Teacher uses past paper questions to assess the concept of whether a reaction is possible.

HOMEWORK: Solve textbook question page 53