

YEAR 9 A - F – CHEMISTRY

WEEK 24 (7th Feb – 11th Feb)

Work Sent to the students through Group email/ Google classroom

Topic:– SC5a – Ionic Bonds (Continued) (Reinforcement)

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

Date	Lesson	Topic	Mode of Teaching	
07 th Feb 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: Reinforcement	Zoom	PPT/Video on Ionic Bonds
08 th Feb Monday (boys)	7	<ul style="list-style-type: none"> 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. 		
08 th Feb Monday (girls)	5	Learning Objective : <ul style="list-style-type: none"> 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: Reinforcement	Zoom	PPT and Video on Ionic Bonds
08 th Feb Monday – (boys)	8	<ul style="list-style-type: none"> 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. 		
08 th Feb Monday (girls)	6	Learning Objective : <ul style="list-style-type: none"> 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: Reinforcement	GC	Worksheet discussion
10 th Feb Wednesd ay – (boys)	1	<ul style="list-style-type: none"> 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. 		

	<ul style="list-style-type: none"> • Draw diagrams to explain how Li donates / transfers electron to Br, so both achieve noble gas electronic structure. • Reason out why the noble gases are unreactive. 		
--	---	--	--

Homework : Draw and describe the formation of Ionic Compound Calcium Chloride.

YEAR 10 A/D/E–CHEMISTRY (girls)

WEEK 24 (7th Feb to 11th Feb)

Work Sent to the students through Google classroom

Topic: Electrolysis.

Resources: Text book, Worksheet, power point.

Date	Lesson	Topic	Mode of Teaching	
7/2/2021 Sunday	3	<p>Learning Objective:</p> <ol style="list-style-type: none"> 1. Recall that electrolytes are ionic compounds in the molten state or dissolved in water. 2. Describe electrolysis as a process in which electrical energy, from a direct current supply, decomposes electrolytes <p>Learning Outcome:</p> <ul style="list-style-type: none"> • State the meaning of the term ‘electrolyte’. • Outline what happens during electrolysis. • Cite some examples of electrolytes. 	Zoom	Teacher uses powerpoint presentation to explain electrolyte, electrolysis and movement of ions during electrolysis.
10/2/2021 Wednesday	3	<p>Learning Objective:</p> <ol style="list-style-type: none"> 1. Explain the movement of ions during electrolysis, in which: a positively charged cations migrate to the negatively charged cathode b negatively charged anions migrate to the positively charged anode. 2. Write half equations for reactions occurring at the anode and cathode in electrolysis. <p>Learning Outcome:</p> <ul style="list-style-type: none"> • How do you explain and represent the reactions taking place at the electrodes in electrolysis? • Analyse the movement of ions during electrolysis 	Zoom	Teacher uses powerpoint presentation that contains interactive questions on half equations for reactions occurring at the anode and cathode in electrolysis.
11/2/2021 Thursday	2 3	<p>Learning Objective:</p> <ol style="list-style-type: none"> 1. Explain oxidation and reduction in terms of loss or gain of electrons. 2. Recall that reduction occurs at the cathode and that oxidation occurs at the anode in electrolysis reactions. <p>Learning Outcome:</p> <ul style="list-style-type: none"> • What happens to the ions during electrolysis? • Explain the meaning of oxidation and reduction in terms of the movement of electrons. 	Zoom	Teacher uses powerpoint presentation to explain oxidation and reduction.

	<p>Learning Objective: To answer the questions, on electrolysis, in the worksheet.</p> <p>Learning outcome: Students will be able to reinforce the concepts learned in the previous lesson by answering the questions in the worksheet.</p>	GC	Instruction will be given in the Google classroom to complete the Worksheet.
--	---	-----------	--

Home work: Solve E1 and exam style question :SC10a (Pg81)

YEAR 10 B/C/F–CHEMISTRY (Boys)

WEEK 24 (7th Feb to 11th Feb)

Work Sent to the students through Google classroom

Topic: Electrolysis

Resources: Text book, Worksheet, power point.

Date	Lesson	Topic	Mode of Teaching	
7/2/2021 Sunday	0	<p>Learning Objective: 1. Recall that electrolytes are ionic compounds in the molten state or dissolved in water. 2. Describe electrolysis as a process in which electrical energy from a direct current supply, decomposes electrolytes.</p> <p>Learning Outcome:</p> <ul style="list-style-type: none"> • State the meaning of the term ‘electrolyte’. • Outline what happens during electrolysis. • Cite some examples of electrolytes. 	Google Meet	Teacher uses powerpoint presentation to explain electrolyte, electrolysis and movement of ions during electrolysis.
8/2/2021 Monday	1&2	<p>Learning Objective: 1. Explain the movement of ions during electrolysis, in which: a positively charged cations migrate to the negatively charged cathode b negatively charged anions migrate to the positively charged anode. 2. Write half equations for reactions occurring at the anode and cathode in electrolysis. 3. Explain oxidation and reduction in terms of loss or gain of electrons. 4. Recall that reduction occurs at the cathode and that oxidation occurs at the anode in electrolysis reactions.</p> <p>Learning Outcome:</p> <ul style="list-style-type: none"> • How do you explain and represent the reactions taking place at the electrodes in electrolysis? • Analyse the movement of ions during electrolysis • What happens to the ions during electrolysis? • Explain the meaning of oxidation and reduction in terms of the movement of electrons. 	Google Meet	Teacher uses powerpoint presentation that contains interactive questions on half equations for reactions occurring at the anode and cathode in electrolysis.

10/2/2021 Wednesday	4	Learning Objective: To answer the questions, on electrolysis, 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.
------------------------	---	--	----	--

Home work: Solve E1 and exam style question : SC10a (Pg81)

YEAR 11 A/D/E – CHEMISTRY (Girls)

WEEK 24 (7th Feb – 11th Feb)

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

Topic:– SC20b: Fractional distillation of crude oil
 SC20f: Breaking down hydrocarbons
 SC20d: Combustible fuels and pollution

Resources: Text book, Worksheet, Boardworks powerpoint

Date	Topic	
07.02.21 Sunday 8 th period Mode of Teaching: Zoom	Learning Objective: Describe and explain the separation of crude oil into simpler, more useful mixtures by the process of fractional distillation Explain how hydrocarbons in different fractions differ from each other in: a the number of carbon and hydrogen atoms their molecules contain b boiling points c ease of ignition d viscosity and are mostly members of the alkane homologous series Learning Outcome: Explain the process of fractional distillation to separate the crude oil into useful fractions. Describe the relationship between molecule size and boiling point, viscosity, ease of ignition, and flammability.	Teacher uses powerpoint presentation with interactive questions
08.02.21 Monday 4 th period Mode of Teaching: Zoom	Learning Objective: Explain how cracking involves the breaking down of larger, saturated hydrocarbon molecules (alkanes) into smaller, more useful ones, some of which are unsaturated (alkenes) Explain why cracking is necessary Learning Outcome: Recall that heating large alkanes with a catalyst at high temperature decomposes the hydrocarbon to make smaller molecules. Know that cracking produces more useful molecules including alkenes and fuels.	Teacher uses powerpoint presentation with interactive questions

10.02.21 Wednesday 8 th period Mode of Teaching: Zoom	Learning Objective: Explain some problems associated with acid rain caused when sulfur dioxide dissolves in rain water. Explain why, when fuels are burned in engines, oxygen and nitrogen can react together at high temperatures to produce oxides of nitrogen, which are pollutants. Learning Outcome: Describe the socio-economic and environmental effects of acid rain to include corrosion of limestone buildings and statues, killing fish in rivers and lakes and defoliating trees. Describe the measures used to prevent acid rain, including removing sulfur from fuels before combustion burning less fossil fuels, removing sulfur dioxide from industrial and vehicle emissions.	Teacher uses powerpoint presentation with interactive questions
11.02.21 Thursday 5 th Period Mode of Teaching: Zoom	Learning Objective: Evaluate the advantages and disadvantages of using hydrogen, rather than petrol, as a fuel in cars Learning Outcome: Analyses the use of hydrogen, rather than petrol, as a fuel in cars by giving a plus (advantages), minus (disadvantages).	Teacher uses powerpoint presentation with interactive questions
11.02.21 Thursday 6 th Period Mode of Teaching: GC	Learning Objective: To answer the questions, on Fractional distillation of crude oil, breaking down hydrocarbons and combustible fuels, 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 of SC20b: Fractional distillation of crude oil; SC20f: Breaking down hydrocarbons .

YEAR 11 B/C/F – CHEMISTRY (Boys)

WEEK 24 (7th Feb to 11th February)

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

Topic:– SC20b: Fractional distillation of crude oil
 SC20f: Breaking down hydrocarbons
 SC20d: Combustible fuels and pollution

Resources: Text book, Worksheet, Boardworks powerpoint

Date	Topic	
07.02.21 Sunday 1 st Period Mode of Teaching: Zoom	Learning Objective: Describe and explain the separation of crude oil into simpler, more useful mixtures by the process of fractional distillation Explain how hydrocarbons in different fractions differ from each other in: a the number of carbon and hydrogen atoms their molecules contain b boiling points c ease of ignition d viscosity and are mostly members of the alkane homologous series	Teacher uses powerpoint presentation with interactive questions.

	<p>Learning Outcome: Explain the process of fractional distillation to separate the crude oil into useful fractions. Describe the relationship between molecule size and boiling point, viscosity, ease of ignition, and flammability.</p>	
<p>07.02.21 Sunday 2nd Period</p> <p>Mode of Teaching: Zoom</p>	<p>Learning Objective: Explain how cracking involves the breaking down of larger, saturated hydrocarbon molecules (alkanes) into smaller, more useful ones, some of which are unsaturated (alkenes) Explain why cracking is necessary</p> <p>Learning Outcome: Recall that heating large alkanes with a catalyst at high temperature decomposes the hydrocarbon to make smaller molecules. Know that cracking produces more useful molecules including alkenes and fuels.</p>	Teacher uses powerpoint presentation with interactive questions
<p>08.02.21 Monday 3rd Period</p> <p>Mode of Teaching: Zoom</p>	<p>Learning Objective: Explain some problems associated with acid rain caused when sulfur dioxide dissolves in rain water. Explain why, when fuels are burned in engines, oxygen and nitrogen can react together at high temperatures to produce oxides of nitrogen, which are pollutants.</p> <p>Learning Outcome: Describe the socio-economic and environmental effects of acid rain to include corrosion of limestone buildings and statues, killing fish in rivers and lakes and defoliating trees. Describe the measures used to prevent acid rain, including removing sulfur from fuels before combustion burning less fossil fuels, removing sulfur dioxide from industrial and vehicle emissions.</p>	Teacher uses powerpoint presentation with interactive questions
<p>09.02.21 Tuesday 7th Period</p> <p>Mode of Teaching: Zoom</p>	<p>Learning Objective: Evaluate the advantages and disadvantages of using hydrogen, rather than petrol, as a fuel in cars</p> <p>Learning Outcome: Analyses the use of hydrogen, rather than petrol, as a fuel in cars by giving a plus (advantages), minus (disadvantages).</p>	Teacher uses powerpoint presentation with interactive questions
<p>11.02.21 Thursday 4th Period</p> <p>Mode of Teaching: GC</p>	<p>Learning Objective: To answer the questions, on Fractional distillation of crude oil, breaking down hydrocarbons and combustible fuels, in the worksheet.</p> <p>Learning outcome: Students will be able to reinforce the concepts learned in the previous lesson by answering the questions in the worksheet..</p>	Worksheet assigned through GC.

HOMEWORK: Complete the textbook Qs of SC20b: Fractional distillation of crude oil; SC20f: Breaking down hydrocarbons

YEAR 11 G/H-CHEMISTRY (IGCSE)

WEEK 24 (7th Feb to 11th Feb)

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

Topic: Alcohols

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

Date	Topic	
<p>07.02.21</p> <p>Sunday 6th period</p> <p>Mode of Teaching: Zoom/ Google Meet</p>	<p>Lesson Objective: know that alcohols contain the functional group –OH understand how to draw structural and displayed formulae for methanol, ethanol, propanol (propan-1-ol only) and butanol (butan-1-ol only), and name each compound.</p> <p>Learning Outcome: Understand that the functional group-OH is a reactive group in an alcohol molecule Name and draw structural and displayed formulae for alcohols.</p>	<p>Teacher uses power point presentation with interactive questions.</p>
<p>08.02.2021</p> <p>Monday 5th period</p> <p>Mode of Teaching: Zoom/ Google Meet</p>	<p>Lesson Objective: know that ethanol can be oxidised by:</p> <ul style="list-style-type: none"> • burning in air or oxygen (complete combustion) • reaction with oxygen in the air to form ethanoic acid (microbial oxidation) • heating with potassium dichromate (VI) in dilute sulfuric acid to form ethanoic acid <p>Learning Outcome: Write a reaction for oxidation of alcohols</p> <ul style="list-style-type: none"> • burning in air or oxygen • reaction with oxygen in the air to form ethanoic acid • heating with potassium dichromate (VI) in dilute sulfuric acid to form ethanoic acid 	<p>Teacher uses power point presentation with interactive questions</p>
<p>09.02.2021</p> <p>Tuesday 1st period & 2nd period</p> <p>Mode of Teaching: Zoom/ Google Meet</p>	<p>Lesson Objective: know that ethanol can be manufactured by:</p> <ul style="list-style-type: none"> • reacting ethene with steam • the fermentation of glucose <p>Learning Outcome: Deduce the relative reactivity of some metals, by their reactions with water, acids and salt solutions.</p> <hr/> <p>Lesson Objective: understand the reasons for fermentation, in the absence of air, and at an optimum temperature</p> <p>Learning Outcome: Discuss the manufacture of ethanol by:</p> <ul style="list-style-type: none"> • reacting ethene with steam • the fermentation of glucose 	<p>Teacher uses power point presentation with interactive questions</p> <hr/> <p>Teacher uses power point presentation with interactive questions</p>

11.02. 2021 Thursday 4 th period Mode of Teaching: GC	Learning Objective: To answer the questions on Alcohols, 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.
--	---	--------------------------------

YEAR 12 D/G – CHEMISTRY

WEEK 24 (7th Feb – 11th Feb)

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	
09.02.21 Tuesday 8 12D 08.02.21 Monday 6 12G 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.	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.
08.02.21 Monday 7- 12G 10.02.21 Wednesday 7- 12D	Learning Objective: calculating empirical formulae and further to calculate molecular formulae. Use the equation $Pv = nRT$ to calculate for gases and volatile liquids.	Teacher uses power point presentation and videos to explain the concept of concentration in various units.

Mode of Teaching – ZOOM	<p>Learning Outcome: students will be able to: Be able to use experimental data to calculate</p> <p>i) empirical formulae</p> <p>ii) molecular formulae including the use of $pV = nRT$ for gases and volatile liquids</p> <p><i>Calculations of empirical formula may involve composition by mass or percentage composition by mass data.</i></p>	Teacher uses worksheet that contains interactive questions, to explain the term ppm.
10.02.21 Wednesday 8- 12D 1-12G Mode of Teaching – zoom	<p>Learning Objective: Calculation of molar volume</p> <p>Learning Outcome: students will be able to: Be able to calculate reacting volumes of gases from chemical equations, and vice versa, using the concepts of amount of substance</p>	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 12 G /D – CHEMISTRY

WEEK 24 (7th Feb – 11th Feb)

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

Topic:– Reaction kinetics

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

Date	Topic	Mode of Teaching	
8.2.2021 Monday 3 12D	<p>Learning Objective To reinforce the concepts such as, the effect of changes in conditions on equilibrium position, equilibrium constant, and reversible reactions in industry , by solving text book questions.</p>	Zoom	Teacher uses powerpoint presentation to reinforce the concepts such as,the effect of changes in conditions on equilibrium position, equilibrium constant, and reversible reactions in industry,
9.2.2021 Tuesday 1 12G	<p>Learning Outcome</p> <ul style="list-style-type: none"> • Predict and justify the qualitative effect of a change in temperature, concentration or pressure on a homogeneous system in equilibrium. • 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. 		

9.2.2021 Tuesday 2 12G 7 12D	<p>Learning Objective:</p> <p>1. know that reactions only take place when collisions take place with sufficient energy, known as activation energy</p> <p>2. To calculate the rate of a reaction from:</p> <p>i data showing the time taken for reaction</p> <p>ii the gradient of a suitable graph, by drawing a tangent, either for initial rate, or at a time, t</p> <p>Learning outcome:</p> <ul style="list-style-type: none"> •What is meant by the term rate of a reaction? •Explain the collision theory of reactions. •Describe how you could measure the rate of a chemical reaction. •Suggest practical methods for determining the rate of a given reaction. 	Zoom	Teacher uses powerpoint presentation to explain collision theory, activation energy and rates of reaction.
10.2.2021 Wednesday 2 12G 11.2.2021 Thursday 7 12D	<p>Learning Objective:</p> <p>.Understand, in terms of collision theory, the effect of a change in concentration, temperature, pressure and surface area on the rate of a chemical reaction</p> <p>Learning outcome:</p> <ul style="list-style-type: none"> •State all factors that can affect the rate of a chemical reaction. • Interpret graphs of mass, volume or concentration of reactant or product against time •Evaluate the experimental data to explain effect of various factors on the rate of the reaction. 	Zoom	Teacher uses powerpoint presentation to explain the effect of a change in concentration, temperature, pressure and surface area on the rate of a chemical reaction.

HOMEWORK: Solve textbook questions (pg 253)

YEAR 13 A /B –CHEMISTRY

WEEK 24 (7th Feb – 11th Feb)

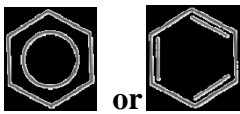
Topic: Further organic chemistry.

Benzene and its chemical properties.

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

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

Date	Topic	
07.02.21 Sunday 1-13A 4-13B Mode of Teaching – Zoom	<p>Lesson Objective:</p> <p>Benzene and its structure.</p> <p>understand why benzene is resistant to bromination, compared with alkenes, in terms of delocalisation of pi bonds in benzene and the localised electron density of the pi bond in</p> <p>Success Criteria: students will be able to:</p> <p>understand that evidence for the delocalised model of the</p>	<p>Teacher uses power point presentation that contains interactive questions.</p> <p>Students solve the worksheet file</p>

	<p>bonding in benzene is provided by data from enthalpy changes of hydrogenation and carbon-carbon bond lengths</p> <p><i>Students may represent the structure of benzene as:</i></p> <div style="display: flex; align-items: center; justify-content: center;">  </div> <p><i>as appropriate in equations and mechanisms.</i></p> <p>alkenes Explain the relative resistance to bromination of benzene, compared with alkenes, in terms of the delocalised electron density of the π bonds in benzene compared with the localised electron density of the C=C bond in alkenes</p>	<p>questions.</p> <p>Teacher uses power point presentation that contains interactive questions.</p> <p>Students solve the worksheet file questions.</p>
<p>Sunday 07.02.21 2-13 A</p> <p>09.02.21 Tuesday 2-13B</p> <p>Mode of Teaching – Zoom</p>	<p>Lesson Objective: Reactions of benzene.</p> <p>Success Criteria: students will be able to: understand the reactions of benzene with:</p> <p>i oxygen in air (combustion with a smoky flame)</p> <p>ii bromine, in the presence of a catalyst</p> <p>iii a mixture of concentrated nitric and sulfuric acids</p> <p>iv halogenoalkanes and acyl chlorides with aluminium chloride as catalyst (Friedel-Crafts reaction)</p>	
<p>Wednesday 10.02.21 4- 13A 2-13B</p> <p>Mode of Teaching – Zoom</p>	<p>Lesson Objective: Mechanism : Reactions of benzene.</p> <p>Success Criteria: students will be able to: Outline the mechanism of electrophilic substitution in arenes, using the mononitration, monohalogenation, alkylation of benzene as examples</p>	<p>Teacher uses power point presentation that contains interactive questions that helps to write mechanism of different reactions.</p> <p>Students solve the worksheet file questions</p>

Homework : Solve worksheet file questions and text book.

YEAR 13 A/B – CHEMISTRY

WEEK 24 (7th Feb – 11th Feb)

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	
7.02.21 Sunday 5 ,8 13B	Learning Objective: Completion of core practical 10	Teacher uses video and power point to discuss the experiment of electrochemical cell.
10.02.21 Wednesday 5 , 6 13A	Learning Outcome: <ul style="list-style-type: none">• Construct an electrochemical cell.• Measure cell potential with proper units.• Research the theoretical value of the same cell constructed and calculate the percentage error.	Student uses worksheet to write observations and calculations.
7.02.21 Sunday 3 13A	Learning Objective: Calculate the unknown values from the Born Haber cycle.	Teacher uses PowerPoint presentation and video to discuss different steps in the cycle.
9.02.21 Tuesday 1 13B	Explain the formation of calcium oxide with Ca^{2+} and O^{2-}	Student uses past paper to reinforce the concept of Born Haber cycle.
	Identify the difference in the lattice enthalpy values of barium oxide and magnesium oxide.	
	Learning Outcome: Solve different questions from past paper on Born Haber cycle.	
	Explain the reason for second electron affinity as endothermic process.	
	Suggest possible reason for the difference in the lattice enthalpy values of barium oxide and magnesium oxide.	

HOMEWORK: Solve textbook question page 80 – Question 1