CHEMISTRY FORM 1 SCHEMES OF WORK – TERM 1								
WEEK	**LESSON**	**TOPIC**	**SUB - TOPIC**	**OBJECTIVES**	**LEARNING/TEACHING ACTIVITIES**	**LEARNING/TEACHING RESOURCES**	**REFERENCES**	**REMARKS**
5	**1-2**	Introduction to chemistry	Chemistry as a subject	By the end of the lesson, the leaner should be able to (i) Recall subjects and topics taught in primary level science (ii) Name the branches of science	• Discussion on primary science topics relation to chemistry • Identifying the branches of science	• Flow chart on branches of science • Pictures on the applications of chemistry • Charts on chemical processes in the home	• Comprehensive secondary chemistry students book 1 pages 15-18 • Comprehensive chemistry teachers book 1 pages 12-13 • Longhorn secondary chemistry book 1 pages 1-2 • Secondary chemistry-KLB students book page 1	
	3-4	Introduction to chemistry	Definition of chemistry and its role in the society	By the end of the lesson, the learner should be able to (a) Define chemistry (b) Explain its role in society, name the career, choices (after studying chemistry)	• Writing of definitions of chemistry • Explaining the role of chemistry in society • Explaining careers related to chemistry	• Use of Photograph of area relevant to chemistry • Chart on careers requiring chemistry as a subject	• Comprehensive secondary chemistry students book 1 pages 15-18 • Comprehensive chemistry teachers book 1 pages 12-13 • Longhorn secondary chemistry book 1 pages 9 • Secondary chemistry-KLB students book page 5	
6	**1**	Introduction to chemistry	Chemistry laboratory	By the end of the lesson, the learner should be able to (i) Define the terms chemistry laboratory	• Discussion on meaning of laboratory • Demonstration of some laboratory apparatus	• School chemistry laboratory • Common laboratory chemical apparatus	• Comprehensive secondary chemistry students book 1 pages 15-18 • Comprehensive chemistry teachers book 1 pages 12-13 • Longhorn secondary chemistry book 1 pages 9 • Secondary chemistry-KLB students book	

							page 5	
	2	Introduction to chemistry	The Bunsen burners	By the end of the lesson, the learner should be able to (i) Name the parts of the Bunsen burner (ii) Name the parts of luminous flame	• Explaining the parts of the Bunsen burner • Drawing parts of a luminous and non-luminous flames	• The Bunsen burner • Chart on parts of a Bunsen burner and burner flame	• Comprehensive secondary chemistry students book 1 pages 15-18 • Comprehensive chemistry teachers book 1 pages 2-3 • Longhorn secondary chemistry book 1 pages 22 • Secondary chemistry-KLB students book page 10	
	3-4	Introduction to chemistry	Apparatus used for studying chemistry	By the end of the lesson, the learner should be able to (i) Name some laboratory apparatus (ii) Draw some laboratory apparatus	• Discussion on chemistry • Laboratory apparatus • Drawing the apparatus	• Chemistry laboratory apparatus	• Comprehensive secondary chemistry students book 1 pages 8-11 • Comprehensive chemistry teachers book 1 pages 2-3 • Longhorn secondary chemistry book 1 pages 14 • Secondary chemistry-KLB students book page 6	
7	**1-2**	Introduction to chemistry	Chemistry laboratory and safety rules	By the end of the lesson, the learner should be able to (i) State at least 10 laboratory safety rules (ii) Explain any 10 laboratory safety rules	• Discussion on the importance of selected laboratory rules	• School laboratory • Laboratory equipment • Chart on laboratory safety rules	• Comprehensive secondary chemistry students book 1 pages 10-12 • Comprehensive chemistry teachers book 1 pages 2-4 • Longhorn secondary chemistry book 1 pages 12	

							• Secondary chemistry- KLB students book page 15	
	3-4	Introduction to chemistry	Other heating apparatus	By the end of the lesson, the learner should be able to (i) Name other heating apparatus apart from the Bunsen burner (ii) Explain how each apparatus functions	• Discussion of how each apparatus works • Discussion on functions of each named apparatus	• Spirit lamp • Candle • Store electric heater	• Comprehensive secondary chemistry students book 1 pages 3-8 • Comprehensive chemistry teachers book 1 pages 4-5 • Longhorn secondary chemistry book 1 pages 22 • Secondary chemistry- KLB students book page 10	
8	**1-2**	Simple classification of substances	Separation of mixtures	By the end of the lesson, the learner should be able to (i) Define the term mixtures (ii) Classify mixtures into miscible and immiscible liquids (iii) List several methods of separating mixtures	• Demonstration of separation of several mixtures • Observation and discussions • Listing several methods of separating mixtures	• Sugar/sand • Chalk/sand • Water/paraffin • Flow chart on mixtures and separation methods	• Comprehensive secondary chemistry students book 1 pages 3-15 • Comprehensive chemistry teachers book 1 pages 6-11 • Longhorn secondary chemistry book 1 pages 36 • Secondary chemistry- KLB students book page 18	
	3-4	Simple classification of substances	Separation of mixtures soluble and insoluble	By the end of the lesson, the learner should be able to (i) Define soluble, insoluble solids. Solutions, solute and	• Defining key terms • Class experiments • Discussion on procedure for separation of mixture	• Sand/salt mixture • Beaker • Conical flask • Filter paper • Evaporating dish • Separating funnel	• Comprehensive secondary chemistry students book 1 pages 13-15 • Comprehensive chemistry teachers book 1 pages 6-11 • Longhorn secondary	

				solvent (ii) Explain how a soluble solid can be separated from an insoluble solid			chemistry book 1 pages 36 • Secondary chemistry-KLB students book page 10	
9	**1-2**	Simple classification of substances	Decantation simple distillation	By the end of the lesson, the learner should be able to (a) Separate immiscible liquids (b) Name the parts and the functions of distillation apparatus (c) Assemble the distillation apparatus	• Carrying out experiments to separate mixtures • Class discussions • Supervised practice • Drawing of diagrams of distillation apparatus	• Liebig condenser • Thermometer • Flask • Tap water • Sea water • Paraffin	• Comprehensive secondary chemistry students book 1 pages 15-18 • Comprehensive chemistry teachers book 1 pages 12-13 • Longhorn secondary chemistry book 1 pages 36 • Secondary chemistry-KLB students book page 22	
	3-4	Simple classification of substances	Fractional distillation	By the end of the lesson, the learner should be able to (i) Explain the stages of fractional distillation (ii) Differentiate between simple distillation and fractional distillation	• Discussion on the stages of fractional distillation • Demonstration of distillation experiment • Drawing of diagrams on fractional distillation • Differentiating between simple and fractional distillation	• Round-bottom flask • Condenser • Burner • Thermometer • Ethanol • water	• Comprehensive secondary chemistry students book 1 pages 17-18 • Comprehensive chemistry teachers book 1 pages 13-14 • Longhorn secondary chemistry book 1 pages 43 • Secondary chemistry-KLB students book page 27	
10	**1-2**	Simple classification of substances	Fractional distillation	By the end of the lesson, the learner should be able to: (i) Explain at least two	• Discussion on application of fractional distillation	• Fractional distillation apparatus • Fractionating column	• Comprehensive secondary chemistry students book 1 pages 38 • Comprehensive	

				industrial applications of fractional distillation		• Chart on fractional distillation	chemistry teachers book 1 pages 14-15 • Longhorn secondary chemistry book 1 pages 45 • Secondary chemistry-KLB students book page 28	
	3-4	Simple classification of substances	Chromatography and solvent extraction	By the end of the lesson, the learner should be able to (i) Define chromatography (ii) Demonstrate the process of chromatography (iii) Explain how different(tours move on a filter paper) (iv) Explain how chromatography is used	• Defining chromatography • Carrying out experiments to show chromatography • Explaining chromatography • Stating uses of chromatography	• Filter paper • Funnel • Ethanol • Flowers • Dropper • Ink • Charts showing chromatograph y	• Comprehensive secondary chemistry students book 1 pages 19-22 • Comprehensive chemistry teachers book 1 pages 15-19 • Longhorn secondary chemistry book 1 pages 51 • Secondary chemistry-KLB students book page 33	
11	**1-4**	Simple classification of substances	Application of chromatography and solvent extraction	By the end of the lesson, the learner should be able to (i) Give one application of chromatogra phy (ii) Explain how oil can be extracted from nuts	• Discussion on application of chromatography • Explaining oil extraction from nuts	• Pestle • Mortar • Nut seeds • Propanone • White paper	• Comprehensive secondary chemistry students book 1 pages 38-40 • Comprehensive chemistry teachers book 1 pages 19 • Longhorn secondary chemistry book 1 pages 55 • Secondary chemistry-KLB students book page 34	
12	**1-2**	Simple classification of substances	Removal of stains	By the end of the lesson, the learner should be able to	• Demonstration on stain removal from fabrics	• Stains of blood, fat, paint • Trashing soda	• Comprehensive secondary chemistry students book 1	

				(i) Explain how stains can be removed from fabrics		• Paraffin • ammonia	pages 40-41 • Comprehensive chemistry teachers book 1 pages 19 • Longhorn secondary chemistry book 1 pages 59 • Secondary chemistry-KLB students book page 33	
	3-4	Simple classification of substances	Revision	By the of lesson, the learner should be able to identify and explain concepts learnt	• Answering questions • Doing assignment • Discussion topics already covered	• Quiz • Assignment • Review questions	• Objectives in schemes of work	
REVISION AND EXAMINATION								
CHEMISTRY FORM 1 SCHEMES OF WORK – TERM 2								
WEEK	**LESSON**	**TOPIC**	**SUB - TOPIC**	**OBJECTIVES**	**LEARNING/TEACHING ACTIVITIES**	**LEARNING/TEACHING RESOURCES**	**REFERENCES**	
1	**1-4**	Revision	Revision of last terms work	By the end of the lesson, the learner should be able to (i) Identify and explain concepts learnt in term I	• Answering questions • Doing assignments • Discussion on topics previously covered	• Assignments • Quiz • Revision questions	• Comprehensive secondary chemistry students book 1 pages 1-20 • Objectives of the scheme of work • Longhorn secondary chemistry book 1 pages 1-58 • Secondary chemistry-KLB students book page 1-39	

2	**1-2**	Simple classification of substances	Crystallization	By the end of the lesson, the learner should be able to (i) Define the term crystallization (ii) Prepare copper (ii) sulphate crystals or sodium chloride	• Carrying out experiments to show crystallization • Discussion on preparation of copper • Sulphate and sodium chloride	• Beaker • Sodium chloride • Stirring rod • Water • Copper (ii) Sulphate	• Comprehensive secondary chemistry students book 1 pages 23-24 • Comprehensive chemistry teachers book 1 pages 20-21 • Longhorn secondary chemistry book 1 pages 57 • Secondary chemistry-KLB students book page 39	
	3-4	Simple classification of substances	Application of crystallization	By the end of the lesson, the learner should be able to (i) Define a supersaturated solution and a saturated solution (ii) Explain how salt is formed in lake Magadi	• Discussion of types of solutions • Explaining salt formation in lake Magadi	• Salt • Stirring rod • Beaker • Water • Burner • Chart on salt formation process at lake Magadi	• Comprehensive secondary chemistry students book 1 pages 23-24 • Comprehensive chemistry teachers book 1 pages 21-22 • Longhorn secondary chemistry book 1 pages 58 • Secondary chemistry-KLB students book page	
3	**1-2**	Simple classification of substances	Sublimation	By the end of the lesson, the leaner should be able to (i) Define sublimation (ii) Give examples of salts that sublimes (iii) Explain how one can separate salt that sublimes	• Defining sublimation • Describing separation by sublimation • Demonstration on sublimation	• Ammonium chloride • Nacl • Burner • Sand • Bathing tubes • Test tube holders	• Comprehensive secondary chemistry students book 1 pages 24-25 • Comprehensive chemistry teachers book 1 pages 22-23 • Longhorn secondary chemistry book 1 pages 48 • Secondary chemistry-KLB students book	

				from salt which do not sublime			page 20	
	3-4	Simple classification of substances	Revision on separation of mixtures	By the end of the lesson, the learner should be able to (i) Identify appropriate methods of separating named mixtures	• Discussion on separation of mixtures	• Revision questions • Marking scheme	• Comprehensive secondary chemistry students book 1 pages 13-24 • Comprehensive chemistry teachers book 1 pages 6-24 • Longhorn secondary chemistry book 1 pages 30-58 • Secondary chemistry-KLB students book page 20	
4	**1-2**	Simple classification of substances	Criteria of purity	By the end of the lesson, the learner should be able to (i) Determine the melting point of ice (ii) Determine the boiling point of water (iii) State the criteria for identifying a pure substance (iv) Define melting and boiling points of substances	• Discussion on melting point and boiling point • Carrying out experiments to show melting and boiling points • Discussion on criteria of purity	• Thermometer • Solid ice • Water • Burner • beaker	• Comprehensive secondary chemistry students book 1 pages 25-26 • Comprehensive chemistry teachers book 1 pages 24 • Longhorn secondary chemistry book 1 pages 59 • Secondary chemistry-KLB students book page 20	
	3-4	Simple classification of substances	Effects of heat on substances	By the end of the lesson, the learner should be able to (i) Explain the effects of impurities on	• Discussing and observing demonstration on effects of impurities on boiling point and melting point	• Thermometer • Solid ice • Water • Burner • beaker	• Comprehensive secondary chemistry students book 1 pages 26-27 • Comprehensive chemistry teachers	

				boiling and melting points			book 1 pages 24-27 • Longhorn secondary chemistry book 1 pages 77 • Secondary chemistry-KLB students book page 35	
5	**1-2**	Simple classification of substances	Effect of heat on substances	By the end of the lesson, the learner should be able to (i) Name the 3 states of matter (ii) State the kinetic theory of matter (iii) Explain the properties of the three states of matter	• Naming the three states of matter • Discussion on the kinetic theory of matter • Explaining the properties of state of matter	• Chart showing properties of the state of matter	• Comprehensive secondary chemistry students book 1 pages 28-30 • Comprehensive chemistry teachers book 1 pages 27-29 • Longhorn secondary chemistry book 1 pages 77 • Secondary chemistry-KLB students book page 35	
	3-4	Simple classification of substances	Effects of heat on substances	By the end of the lesson, the learner should be able to (i) Investigate what happens when ice is heated to boiling point (ii) Use a graph to illustrate changes of states of matter and temperature	• Carrying out experiments to investigate the effects of heat on ice • Observing a demonstration • Discussion on observations of experiments	• Beaker • Thermometer • Tripod stand • Wire gauze • Burner • Ice cubes	• Comprehensive secondary chemistry students book 1 pages 30-31 • Comprehensive chemistry teachers book 1 pages 27-29 • Longhorn secondary chemistry book 1 pages 77 • Secondary chemistry-KLB students book page 35	
6	**1-2**	Simple classification of substances	Effects of heat on substances	By the end of the lesson, the learner should be able to (i) Explain the	• Discussion on melting and boiling points with reference to kinetic	• Chart on particles of matter in each state	• Comprehensive secondary chemistry students book 1 pages 30-31	

				melting point and the boiling point interns of kinetic theory	theory	• Illustrate graph on melting point and boiling points	• Comprehensive chemistry teachers book 1 pages 27-29 • Longhorn secondary chemistry book 1 pages 77 • Secondary chemistry-KLB students book page 35	
	3-4	Simple classification of substances	Permanent and non-permanent changes	By the end of the lesson, the learner should be able to (i) Define permanent changes (ii) Define non-permanent changes	• Defining permanent and non-permanent changes • Carrying out experiments to show permanent and temporary changes	• Burner • Ice • NH_4CL • MG metal • Carbon	• Comprehensive secondary chemistry students book 1 pages 31-33 • Comprehensive chemistry teachers book 1 pages 30-35 • Longhorn secondary chemistry book 1 pages 87-89 • Secondary chemistry-KLB students book page 43	
7	**1-2**	Simple classification of substances	Elements, atoms, molecules and compounds	By the end of the lesson, the learner should be able to: (i) Define an element, a molecule, an atom and a compound	• Discussion on meaning of element, atom, molecule and compound	• Chart on definition of atom, molecule, compound and element	• Comprehensive secondary chemistry students book 1 pages 31-33 • Comprehensive chemistry teachers book 1 pages 30-35 • Longhorn secondary chemistry book 1 pages 87-89 • Secondary chemistry-KLB students book page 48	
	3-4	Simple classification of	Elements, compounds and	By the end of the lesson, the learner should be able	• Identifying and writing chemical	• Chart on symbol of	• Comprehensive secondary chemistry	

		substance	symbols of elements	to: (i) Give examples of at least 3 elements and 3 compounds (ii) State the symbols of common elements	symbols of common elements • Listing examples of elements and compounds	elements	students book 1 pages 35-36 • Comprehensive chemistry teachers book 1 pages 39-40 • Longhorn secondary chemistry book 1 pages 97-98 • Secondary chemistry-KLB students book page 48	
8	**1-2**	Simple classification of substances	Symbols of elements	By the end of the lesson, the learner should be able to (i) Name atleast 4 elements (ii) Give the symbols of atleast 5 elements using latin or English names	Naming and writing correct symbols of elements	• Chart of symbols of elements • The periodic table	• Comprehensive secondary chemistry students book 1 pages 35-36 • Comprehensive chemistry teachers book 1 pages 39-40 • Longhorn secondary chemistry book 1 pages 97-98 • Secondary chemistry-KLB students book page 49	
	3-4	Simple classification of substances	Word equation	By the end of the lesson, the learner should be able to (i) Give simple word equation of chemical reaction	• Writing a variety of simple word equations	• Chart on word equations	• Comprehensive secondary chemistry students book 1 pages 36 • Comprehensive chemistry teachers book 1 pages 36-40 • Longhorn secondary chemistry book 1 pages 105 • Secondary chemistry-KLB students book page 51	

9	**1-2**	Acids and bases	Indicators	By the end of the lesson, the learner should be able to (i) Define acids, organic acids and inorganic acids (ii) Give atleast 3 examples of indicators (iii) Make simple acid-base indicators from flowers	• Defining indicators • Naming types of indicators • Carrying out experiments to prepare flower base of indicators	• Indicators • Litmus paper • Phenolphalein • Methyl orange • Universal indicator • Plastic mortar • Flower petals	• Comprehensive secondary chemistry students book 1 pages 48-49 • Comprehensive chemistry teachers book 1 pages 41-47 • Longhorn secondary chemistry book 1 pages 112 • Secondary chemistry-KLB students book page 54	
	3-4	Acid and bases	Acids	By the end of the lesson, the learner should be able to (i) Define acids, organic acids and inorganic acids (ii) Name at least 3 organic acids and inorganic acids (iii) Give at least 3 properties of acids	• Naming organic and inorganic acids • Listing examples of organic and inorganic • Demonstrating properties of acids • Defining the terms acid, organic and inorganic acids	• Lemon • Orange • Milk • Tea • Cheese • Stomach juice • Car batteries • Hydrochloric acid • Sulphuric acid • Vinegar	• Comprehensive secondary chemistry students book 1 pages 48-49 • Comprehensive chemistry teachers book 1 pages 41-47 • Longhorn secondary chemistry book 1 pages 110 • Secondary chemistry-KLB students book page 59	
10	**1-2**	Acid and bases	Bases and alkalis	By the end of the lesson, the learner should be able to (i) Define a base (ii) Cover at least 3 examples of bases (iii) Give at least 3 properties of bases	• Defining bases • Listing examples of bases • Carrying out experiments to show properties of bases	• Soap • Anti-acid tablets • JIK • Chart on properties of bases	• Comprehensive secondary chemistry students book 1 pages 50-57 • Comprehensive chemistry teachers book 1 pages 41-47 • Longhorn secondary chemistry book 1	

							pages 111 • Secondary chemistry-KLB students book page 63	
	3-4	Acid and bases	Colour changes of indicators in acid and bases	By the end of the lesson, the learner should be able to (i) Give colour of each indicator in acidic and basic media as well as in neutral solutions	• Carrying out experiments on colur changes of indicators • Discussion on color changes of indicators and basic media	• Indicators • Acid solutions • Basic solutions • Droppers	• Comprehensive secondary chemistry students book 1 pages 44-47 • Comprehensive chemistry teachers book 1 pages 46 • Longhorn secondary chemistry book 1 pages 115-118 • Secondary chemistry-KLB students book page 55	
11	**1-2**	Acid and bases	Universal indicator and PH scale	By the end of the lesson, the learner should be able to (i) Give reasons why the universal indicator is commonly used (ii) Define a PH scale and give the PH acids, bases and neutral solutions in the scale (iii) Measure the PH of given solutions	• Discussion on the universal indicator • Carrying out experiments on the universal indicator • Discussion on the ph scale	• PH scale • PH indicators • Solutions of acids, bases and neutral solutions	• Comprehensive secondary chemistry students book 1 pages 44-47 • Comprehensive chemistry teachers book 1 pages 46-47 • Longhorn secondary chemistry book 1 pages 116 • Secondary chemistry-KLB students book page 58	
	3-4	Acid and bases	Importance of acid-base neutralization	By the end of the lesson, the learner should be able to (i) Explain 3	• Discussions on application of acids and bases • Identifying	• Antacids tablets • Decayed path • Acidic salts • Corroded	• Comprehensive secondary chemistry students book 1 pages 50-57	

				applications of acid-base neutralization reactions in real lits (ii) Give the disadvantages of acids and bases	advantages and disadvantages of acids and bases	metals	• Comprehensive chemistry teachers book 1 pages 47-48 • Longhorn secondary chemistry book 1 pages 117 • Secondary chemistry-KLB students book page 63	
12	**1-2**	Air and combustion	Combustion of Air	By the end of the lesson, the learner should be able to (i) Give the percentage composition of constituents of air (ii) Demonstrate that air has no main active parts	• Discussion on composition of air • Demonstration on a burning candle in limited air • Observation and discussion • Recording the composition of air	• Trough • Gas jar • Bee hive shelf • Candle • Pie-chart on composition of air	• Comprehensive secondary chemistry students book 1 pages 56-57 • Comprehensive chemistry teachers book 1 pages 48-50 • Longhorn secondary chemistry book 1 pages 126 • Secondary chemistry-KLB students book page 68	
	3-4	Air and combustion	Percentage composition of oxygen in air	By the end of the lesson, the learner should be able to (i) Calculate the percentage composition of oxygen in air	• Carrying out experiment to determine the percentage of oxygen in the air • Observation and calculation of percentage of oxygen in air	Chart on how to determine the percentage composition of oxygen in air	• Comprehensive secondary chemistry students book 1 pages 54-57 • Comprehensive chemistry teachers book 1 pages 48-50 • Longhorn secondary chemistry book 1 pages 126 • Secondary chemistry-KLB students book page 78	
REVISION AND END OF TERM EXAMINATION								

CHEMISTRY FORM 1 SCHEMES OF WORK – TERM 3							
WEEK	**LESSON**	**TOPIC**	**SUB - TOPIC**	**OBJECTIVES**	**LEARNING/TEACHING ACTIVITIES**	**LEARNING/TEACHING RESOURCES**	**REFERENCES**
1	**1-4**	REVISION	Revision of term two's work	By the end of the lesson, the learner should be able to (i) Identify and explain concepts learnt in term 2	• Answering questions • Quiz • Discussion with teachers on topics previously covered	• Assignment • Quiz • Review questions	• Comprehensive secondary chemistry students book 1 pages 22-55 • Objective in the schemes of work • Longhorn secondary chemistry book 1 pages 1-126 • Secondary chemistry-KLB students book page 1-78
2	**1-2**	Air and combustion	Quantitative determination of oxygen in air	By the end of the lesson, the learner should be able to (i) Calculate quantatively the percentage of oxygen in air (ii) Determine the proportion of air used when copper turnings is heated in a fixed volume of air (iii) Calculate the percentage of oxygen in the air using alkaline pyrogallol	• Carrying our experiment to investigate percentage of oxygen in air • Discussion on the observation made • Calculating the percentage of air using alkaline pyrogallol	• Gas syringes • Glass tube • Copper turnings • Liquid pyrogallol • NoOH • Measuring cylinders • Bunsen burner • Pair of tongs	• Comprehensive secondary chemistry students book 1 pages 54-57 • Comprehensive chemistry teachers book 1 pages 51-54 • Longhorn secondary chemistry book 1 pages 128 • Secondary chemistry-KLB students book page 70
	3-4	Air combustion	Rusting	By the end of the lesson,	• Discussion on the	• Discussion on	• Comprehensive

				the learner, should be able to (i) Give the uses of oxygen (ii) Determine the conditions necessary for rusting (iii) List three ways of preventing rusting	uses of oxygen • Carrying out of experiment to determine conditions for rusting	the uses of oxygen • Carrying out an experiment to determine conditions • Discussion on conditions for rusting	secondary chemistry students book 1 pages 54-57 • Comprehensive chemistry teachers book 1 pages 51-54 • Longhorn secondary chemistry book 1 pages 128 • Secondary chemistry-KLB students book page 76	
3	**1-2**	Air and combustion	Burning substances in air	By the end of the lesson, the learner should be able to (i) Determine the change in mass when substances burn in air and note the acidity or alkalinity of the gas produced (ii) Write word equations and define acids and basic oxides	• Carrying out experiments of burning substances in air • Discussion on observations • Writing relevant word equations	• Mg, na,C,S,P, Co, ca • Crucible • Weighing • Burners • Litmus paper	• Comprehensive secondary chemistry students book 1 pages 62-65 • Comprehensive chemistry teachers book 1 pages 56-59 • Longhorn secondary chemistry book 1 pages 131 • Secondary chemistry-KLB students book page 79	
	3-4	Air and combustion	Laboratory: Preparation and properties of oxygen	By the end of the lesson, the learner should be able to (i) Assemble the apparatus used to prepare oxygen (ii) give the physical and chemical properties of	• carrying out experiments to prepare oxygen • observing demonstration • discussion on properties of oxygen • defining oxidation and reduction	• flat-bottomed flask • thistle funnel with clip • trought • gas jar • delivery tube • hydrogen peroxide • c,s,mg,co • two-holed	• Comprehensive secondary chemistry students book 1 pages 61-64 • Comprehensive chemistry teachers book 1 pages 55-56 • Longhorn secondary chemistry book 1 pages 147 • Secondary chemistry-	

				(iii) oxygen give a confirmatory test for oxygen gas		tuber tongs	KLB students book page 78	
4	**1-2**	Air and combustion	Atmosphere and pollution	By the end of the lesson, the learner should be able to (i) Define atmospheric pollution (ii) Explain the causes of air pollution (iii) Explain the efforts being made to reduce air pollution	• Discussions on causes and control of air pollution	• Chart showing causes and control of air pollution	• Comprehensive secondary chemistry students book 1 pages 68-69 • Comprehensive chemistry teachers book 1 pages 57-60 • Longhorn secondary chemistry book 1 pages 135 • Secondary chemistry-KLB students book page 88	
	3-4	Air and combustion	Preparation, drying and collection of gases	By the end of the lesson, the learner should be able to (i) List the stages of gas preparation and collection (ii) Explain how gases can be generated, dried and collected (iii) Give the characteristics if gas collected by each method	• Discussion on method of gas preparation and collection • Carrying out experiments to show gas preparations and collections • Discussion on gas collected by each method	• Thistles funnel • Flask • U-tube • Gas jar • Delivery tube • Charts on methods of generation, drying and collection of gases	• Comprehensive secondary chemistry students book 1 pages 78-89 • Comprehensive chemistry teachers book 1 pages 61 • Longhorn secondary chemistry book 1 pages 144 • Secondary chemistry-KLB students book page 75	
5	**1-2**	Air and combustion	Industrial preparation of oxygen	By the end of the lesson, the learner should be able to (i) Explain how oxygen can	• Discussion on preparation of oxygen by fractional distillation of liquids air	• Chart showing fractional distillation in liquid air	• Comprehensive secondary chemistry students book 1 pages 57-58 • Comprehensive	

				be distilled from liquid air by fractional distillation			chemistry teachers book 1 pages 61 • Longhorn secondary chemistry book 1 pages 158 • Secondary chemistry-KLB students book page 75	
	3-4	Air and combustion	Activity series and uses of oxygen gas	By the end of the lesson, the learner should be able to (i) Arrange elements in order of reactivity with oxygen from most to least reactive (ii) Give atleast 3 uses of oxygen gas	• Discussion on reactivity series • Explaining uses of oxygen	• Writing relevant equation • Chart showing reactivity series	• Comprehensive secondary chemistry students book 1 pages 66 • Comprehensive chemistry teachers book 1 pages 56-61 • Longhorn secondary chemistry book 1 pages 159 • Secondary chemistry-KLB students book page 83,87-89	
6	**1-2**	Water and hydrogen	Sources of water	By the end of the lesson, the learner should be able to (i) State sources of water (ii) Explain the importance of water	• Discussion on the sources of water • Explaining the importance of water	• Chart on sources of water • Photographs • Magazines and scientific journals	• Comprehensive secondary chemistry students book 1 pages 70-71 • Comprehensive chemistry teachers book 1 pages 62-71 • Longhorn secondary chemistry book 1 pages 174 • Secondary chemistry-KLB students book page 91	
	3-4	Water and hydrogen	Water is a product of bringing organic	By the end of the lesson, learner should be able to (i) Assemble	• Carrying out an experiment to show water is a product	• Candle ice cold water • Funnel	• Comprehensive secondary chemistry students book 1	

			matter	apparatus to show the products of burning candle and test for water	• of burning organic matter • Observation and discussion of results of experiment	• CuSo4 • Wash bottle • Two test tubes with side arms • Lime water	pages 71 • Comprehensive chemistry teachers book 1 pages 62-64 • Longhorn secondary chemistry book 1 pages 176 • Secondary chemistry-KLB students book page 92	
7	**1-2**	Water and hydrogen	Water as an oxide hydrogen	By the end of the lesson, the learner should be able to (i) Assemble apparatus to show that water is an oxide of hydrogen (ii) Test for the presence of water	• Carrying out an experiment to show water is an oxide of hydrogen • Observation and discussion on results from experiment	• Hydrogen generator • Cold surface • CuSo4 • Cobalt chloride	• Comprehensive secondary chemistry students book 1 pages 71, 80-82 • Comprehensive chemistry teachers book 1 pages 62-71 • Longhorn secondary chemistry book 1 pages 194 • Secondary chemistry-KLB students book page 91	
	3-4	Water and hydrogen	Reaction of metals with water	By the end of the lesson, the learner should be able to (i) Explain the observations when metals react with water (ii) Write word equation when metals react with water	• Carrying out experiment to show reactions of water with metals • Observations and discussion on the results of experiments writing word equation for the reactions	• Water • Sodium magnesium • Calcium potassium • Iron, zinc • Litmus • Splint • Trough • Gas jar	• Comprehensive secondary chemistry students book 1 pages 73-75 • Comprehensive chemistry teachers book 1 pages 65-66 • Longhorn secondary chemistry book 1 pages 182 • Secondary chemistry-KLB students book page 92	
8	**1-2**	Water and	Reaction of	By the end of the lesson,	• Carrying our	• Steam	• Comprehensive	

		hydrogen	metals with steam	the learner should be able to (i) Explain the observations when the magnesium react with cold water (ii) Write word equation for the reaction between metals and steam	experiments to show the reaction of magnesium with steam • Observation and discussion on results obtained • Writing a word equation for the reaction	• Mg • Boiling tube • Trough • Gas jar • Delivery tube	secondary chemistry students book 1 pages 75-76 • Comprehensive chemistry teachers book 1 pages 67-69 • Longhorn secondary chemistry book 1 pages 182 • Secondary chemistry-KLB students book page 94	
	3-4	Water and hydrogen	Reactivity series of water with metals	By the end of the lesson, the learner should be able to (i) Arrange metals in order of their reactivity with water from most to least reactive	• Discussion on reactivity of metals with water and steam • Drawing summary tube • Showing reactivity	• Chart on reactivity series	• Comprehensive secondary chemistry students book 1 pages 77 • Comprehensive chemistry teachers book 1 pages 69-71 • Longhorn secondary chemistry book 1 pages 182 • Secondary chemistry-KLB students book page 96	
9	**1-2**	Water and hydrogen	Laboratory preparation of hydrogen	By the end of the lesson, the learner should be able to (i) Assemble the apparatus used to prepare hydrogen gas in the laboratory (ii) Give the physical and the chemical properties of	• Discussion on preparation, properties and test of hydrogen gas • Carrying out experiments to prepare hydrogen • Observation and discussion on results objectives • Carrying out the felt for hydrogen	• Flat bottomed flask • Thistle funnel • Cork • Delivery tube • Trough • Gas jar • Splint • Water • Zinc granules • Dilute sulphuric acid	• Comprehensive secondary chemistry students book 1 pages 78-82 • Comprehensive chemistry teachers book 1 pages 62-67 • Longhorn secondary chemistry book 1 pages 189 • Secondary chemistry-KLB students book	

				hydrogen gas (iii) Give the general test for hydrogen gas			page 96	
	3-4	Water and hydrogen	Oxidation and reduction	By the end of the lesson, the learner should be able to (i) Explain using word equations how hydrogen is a good reducing agent (ii) Define oxidation reduction and redox reactions in terms of hydrogen (iii) Use word equations to explain redox	• Defining oxidation and reduction • Discussion on hydrogen as a reducing agent • Using word equations to explain redox	• Hydrogen generator • Burner • Cuo, Copper (ii) sulphate • Calcium II chloride • tube	• Comprehensive secondary chemistry students book 1 pages 80-82 • Comprehensive chemistry teachers book 1 pages 67-69 • Longhorn secondary chemistry book 1 pages 193 • Secondary chemistry-KLB students book page 100	
10	**1-2**	Water and hydrogen	Uses of hydrogen	By the end of the lesson, the learner should be able to (i) Explain atleast 3 uses of hydrogen	• Discussion on the uses of hydrogen	Chart on uses of hydrogen	• Comprehensive secondary chemistry students book 1 pages 82-83 • Comprehensive chemistry teachers book 1 pages 68-69 • Longhorn secondary chemistry book 1 pages 196 • Secondary chemistry-KLB students book page 102	
	3-4	Water and	Summary of the	By the end of the lesson,	• Defining oxidation	• Hydrogen	• Comprehensive	

		hydrogen	topics	the learner should be able to (i) Explain using word equation how hydrogen is a good reducing agent (ii) Define oxidation, reduction and redox reactions, in terms of hydrogen (iii) Use word equations to explain redox	• and reduction • Discussion on hydrogen and reducing agent • Using word equation to explain redox	• generator • Burner • Cuo, Copper (ii) sulphate, calcium (ii) chloride • U-Tube	• secondary chemistry students book 1 pages 80-82 • Comprehensive chemistry teachers book 1 pages 67-69 • Longhorn secondary chemistry book 1 pages 201 • Secondary chemistry-KLB students book page 103	

EXAMS AND REVISION

CHEMISTRY FORM 2 SCHEMES OF WORK – TERM 1

WEEK	LESSON	TOPIC	SUB - TOPIC	OBJECTIVES	LEARNING/TEACHING ACTIVITIES	LEARNING/TEACHING RESOURCES	REFERENCES	REMARKS
1	**1-2**	Structure of the and the periodic table	Structure of the atom	By the end of the lesson, the learner should be able to (i) Define the atom (ii) Describe different models of the atom	• Explaining the meaning of the atom • Describe Dalton's theory of the atom • Describing Rutherford's model of the atom	• Chart on the models of atom • Improvised models of the atom	• Comprehensive secondary chemistry students book 2 pages 1-2 • Comprehensive chemistry teachers book 2 pages 1-2 • Longhorn secondary chemistry book 2 pages 1 • Secondary chemistry-KLB students book 2 page 1	
	3-4	Structure of the atom and the	Names and symbols of atom	By the end of the lesson, the learner should be able	• Identifying the names of the first	• The periodic table	• Comprehensive secondary chemistry	

		periodic table		(i) Give names and correct symbols of the first 20 elements of the periodic table	20 elements of the periodic table • Practicing how to write the correct symbols of the first 20 elements of the periodic table	• Charting on English and latin names of elements • Table of elements and corresponding symbols	students book 2 pages 2-3 • Comprehensive chemistry teachers book 2 pages 1-3 • Longhorn secondary chemistry book 2 pages 1 • Secondary chemistry-KLB students book 2 page 1	
2	**1-2**	Structure of the atom and the periodic table	Properties of the sub-atomic particles	By the end of the lesson, the learner should be able to (i) Describe proton, neutron and electron (ii) Make a simplified model of the atom	• Define proton, neutron and electron • Construction a tabular summary of the properties of proton, neutron and electron • Drawing a simple model of the atom	• Model of atom and energy levels • Chart on properties of proton, neutron and electron	• Comprehensive secondary chemistry students book 2 pages 2-3 • Comprehensive chemistry teachers book 2 pages 3-4 • Longhorn secondary chemistry book 2 pages 7 • Secondary chemistry-KLB students book 2 page 2	
	3-4	Structure of the atom and the periodic table	Electron arrangement of the first 20 elements of the periodic table	By the end of the lesson, the learner should be able to (i) Describe the structure of the atom (ii) Write the electron arrangement of the first 20 elements of the periodic table	• Describing the structure of the atom • Explaining the position of an element in the periodic table	• Chart on the models of the atom • Periodic table • Models of atom	• Comprehensive secondary chemistry students book 2 pages 3-6 • Comprehensive chemistry teachers book 2 pages 3-4 • Longhorn secondary chemistry book 2 pages 1-6 • Secondary chemistry-KLB students book 2 page 4	

3	**1-2**	Structure of the atom and the periodic table	Models of electron arrangement	By the end of the lesson, the learner should be able to (i) draw the electron arrangements according to Bohr's model	• discussion on the points in Bohr's theory of the atom • drawing election arrangement based on a tonic numbers	• a chart on the dot and cross models of electron arrangement	• Comprehensive secondary chemistry students book 2 pages 5-6 • Comprehensive chemistry teachers book 2 pages 4-6 • Longhorn secondary chemistry book 2 pages 2 • Secondary chemistry-KLB students book 2 page 4	
	3-4	Structure of the atom and the periodic table	Atomic characteristics	By the end of the lesson, the learner should be able to (i) Define atomic number, isotopes and relative atomic mass	• Defining atomic number, mass number and isotope • Identifying isotopes and giving examples • Defining relative atomic • Solving problems on atomic number, mass number and isotopes	• Model of electron arrangement • The periodic table • Chart on column isotopes of carbon, chlorine oxygen and neon	• Comprehensive secondary chemistry students book 2 pages 6-9 • Comprehensive chemistry teachers book 2 pages 3-6 • Longhorn secondary chemistry book 2 pages 7 • Secondary chemistry-KLB students book 2 page 4	
4	**1-2**	Structure of atom and periodic table	Relative atomic mass and isotopes	By the end of the lesson, the learner should be able to (i) Calculate relative atomic mass from isotopic composition	• Explaining relative atomic mass • Calculating relative atomic mass	• Chart on examples of correct calculations of relative atomic mass	• Comprehensive secondary chemistry students book 2 pages 9-11 • Comprehensive chemistry teachers book 2 pages 3-6 • Longhorn secondary chemistry book 2 pages 10-12 • Secondary chemistry-KLB students book 2	

							page 10	
	3-4	Structure of the atom and the periodic table	The periodic table	By the end of the lesson, the learner should be able to (i) Explain the position of an element in the periodic table interms of its electron arrangements	• Discussing the history of the periodic table • Explaining Mendeleenes periodic law • Constructing part of the periodic table showing the first 20 elements	• The periodic table • Chart on the history of the periodic table	• Comprehensive secondary chemistry students book 2 pages 11-13 • Comprehensive chemistry teachers book 2 pages 3-6 • Longhorn secondary chemistry book 2 pages 17 • Secondary chemistry-KLB students book 2 page 8	
5	**1-2**	Structure of the atom and the periodic table	Ion formation	By the end of the lesson, the learner should be able to (i) Predict the type of ion formation from a given electron arrangement of an atom	• Explaining ion formation by loss or gain of electrons • Predicting and drawing the structures of ions of named elements	• The periodic table • Chart on electron arrangements and ion formation • Rules of predicting types of ion formed by an element in view of electron arrangement	• Comprehensive secondary chemistry students book 2 pages 13-15 • Comprehensive chemistry teachers book 2 pages 4-6 • Longhorn secondary chemistry book 2 pages 20 • Secondary chemistry-KLB students book 2 page 12	
	3-4	Structure of the atom and the periodic table	Ionization energy and electron affinity	By the end of the lesson, the learner should be able to (i) Define ionization energy and electron affinity	• Defining ionization energy and electron affinity • Explaining trends in ionization energy and electron affinity	• Tables of values of electron affinity and ionization energy	• Comprehensive secondary chemistry students book 2 pages 15-16 • Comprehensive chemistry teachers book 2 pages 4-6 • Longhorn secondary chemistry book 2	

							pages 25 • Secondary chemistry-KLB students book 2 page 12	
6	**1-2**	Structure of the atom and the periodic table	Valence and oxidation numbers	By the end of the lesson ,the learner should be able to (i) Define valence and oxidation number of an element	• Defining valences and oxidation number • Discussion on the table of valences of elements and radicals	• Periodic table • Tables of valences of elements and radicals • Ball and stick woods of atoms • The hook model of valences	• Comprehensive secondary chemistry students book 2 pages 17-18 • Comprehensive chemistry teachers book 2 pages 4-6 • Longhorn secondary chemistry book 2 pages 25-26 • Secondary chemistry-KLB students book 2 page 14-15	
3-4	**3-4**	Structure of the atom and the periodic table	Valence, oxidation numbers and radicals	By the end of the lesson, the learner should be able to (i) Predict valences and oxidation numbers from the position of elements in the periodic table (ii) Define radicals and state the valences	• Predicting valences and oxidation numbers of elements • Defining the term radical • Discussion on table of valences for common radicals	• Tables of valences and oxidation numbers • The Hook model the bull and stick model of valences	• Comprehensive secondary chemistry students book 2 pages 17-20 • Comprehensive chemistry teachers book 2 pages 4-6 • Longhorn secondary chemistry book 2 pages 28-29 • Secondary chemistry-KLB students book 2 page 14-15	
7	**1-2**	Structure of the atom and the periodic table	Chemical formulae	By the end of the lesson, the learner should be able to (i) Derive the formulae of some compounds	• Discussing the procedure of deriving chemical formulae of compounds • Deriving chemical formulae of	• Chart on chemical formulae of some compounds • Table of Valences	• Comprehensive secondary chemistry students book 2 pages 21-22 • Comprehensive chemistry teachers	

				from valences of elements and radicals	compounds		book 2 pages 4-6 • Longhorn secondary chemistry book 2 pages 29 • Secondary chemistry-KLB students book 2 page 20	
	3-4	Structure of the atom and the periodic table	Chemical formulae	By the end of the lesson, the learner should be able to (i) Solve problems on chemical formulae	• Writing correct chemical Formulae of selected compounds	• Quiz on chemical formuale	• Comprehensive secondary chemistry students book 2 pages 21-22 • Comprehensive chemistry teachers book 2 pages 4-6 • Longhorn secondary chemistry book 2 pages • Secondary chemistry-KLB students book 2 page 20	
8	**1-2**	Structure of the atom and the periodic table	Chemical equations	By the end of the lesson, the leaner should be able to (i) Write simple balanced chemical equations (ii) Use state symbols	Write balanced chemical equations • Discussing state symbols • Using state symbols • Balancing chemical equations	• Chart on the procedure of balancing chemical equations	• Comprehensive secondary chemistry students book 2 pages 23-24 • Comprehensive chemistry teachers book 2 pages 4-6 • Longhorn secondary chemistry book 2 pages 35 • Secondary chemistry-KLB students book 2 page 20	
	3-4	Structure of the atom and the periodic table	Project	By the end of the lesson, the learner should be able to design and atomic model	• Carrying out project on atomic model	• Sell tape • Polystyrene • Marbles • wire	• Comprehensive secondary chemistry students book 2 pages 25	

							• Comprehensive chemistry teachers book 2 pages 3-6 • Longhorn secondary chemistry book 2 pages 35 • Secondary chemistry-KLB students book 2 page 20	
9	**1-2**	Chemical families: patterns in properties	Alkali metals	By the end of the lesson, the learner should be able to (i) Identify alkali metals (ii) Describe the electronic arrangement of alkali metals (iii) State and explain their physical properties	• Identify group I elements • Describing electronic arrangement of alkali metals • Explaining physical properties of alkali metals	• Samples of well stored alkali metals • Chart on properties of alkali metals	• Comprehensive secondary chemistry students book 2 pages 27-30 • Comprehensive chemistry teachers book 2 pages 12-17 • Longhorn secondary chemistry book 2 pages 44 • Secondary chemistry-KLB students book 2 page 26	
	3-4	Chemical families: patterns in properties	Alkali metals	By the end of the lesson, the learner should be able to (i) Describe the chemical properties of alkali metals	• Observing the reaction of alkali metals with air • Describing the reaction of alkali metals with cold water	• Deflagrating spoon • Alkali metals • Trough • Water • Tongs • Krufe	• Comprehensive secondary chemistry students book 2 pages 30-32 • Comprehensive chemistry teachers book 2 pages 12-17 • Longhorn secondary chemistry book 2 pages 49 • Secondary chemistry-KLB students book 2 page 26	
10	**1-2**	Chemical families:	Reaction of alkali metals with	By the end of the lesson, the learner should be able	• Carrying out experiments on	• Gas jar • Deflagrating	• Comprehensive secondary chemistry	

		Patterns in properties	chloride	to (i) Describe and explain the reaction of alkali metals with chlorine	reaction of alkali metals with chlorine gas • Writing equations for reaction of alkali metals with chlorine	spoon • Lithium • Sodium • Source of chlorine • Petri dish • Bunsen burner	students book 2 pages 32-33 • Comprehensive chemistry teachers book 2 pages 12-17 • Longhorn secondary chemistry book 2 pages 55 • Secondary chemistry-KLB students book 2 page 30	
	3-4	Chemical families: patterns in properties	Use of alkali metals	By the end of the lesson, the learner should be able to describe the uses of alkali metals	• Discussing the uses of alkali metals • Listing the uses of alkali metals		• Comprehensive secondary chemistry students book 2 pages 33-35 • Comprehensive chemistry teachers book 2 pages 12-17 • Longhorn secondary chemistry book 2 pages 57 • Secondary chemistry-KLB students book 2 page 32	
11	**1-2**	Chemical families: patterns in properties	Alkaline with metals (Group II)	By the end of the lesson, the learner should be able to (i) Identify alkaline with metals (ii) Write the electron arrangements of alkaline with earth metals	• Explaining the electron arrangement and grading in size of alkaline-earth metals • Explaining ionization energies	• Periodic table • Chart on atomic radius and ionization energy of group II metals	• Comprehensive secondary chemistry students book 2 pages 35-36 • Comprehensive chemistry teachers book 2 pages 18-21 • Longhorn secondary chemistry book 2 pages 58 • Secondary chemistry-KLB students book 2 page 33	

	3-4	Chemical families: pattern in properties	Alkaline earth metals	By the end of the lesson, the learner should be able to (i) State and explain physical properties of alkaline earth metals (ii) Describe the reaction of alkaline earth metals with air	• Discussion on properties of alkaline-earth metals • Carrying and experiments on reaction of group II metal with air • Writing equation for appropriate reactions	• Tables of physical properties of group II metals • Pair of tongs • Bunsen burner • Test tubes • Measuring cylinders • Magnesium ribbon • Calcium • Phenolphthalein	• Comprehensive secondary chemistry students book 2 pages 36-38 • Comprehensive chemistry teachers book 2 pages 18-21 • Longhorn secondary chemistry book 2 pages 61 • Secondary chemistry-KLB students book 2 page 33	
12	**1-2**	Chemical families: pattern in properties	Alkaline-earth metals	By the end of the lesson, the learner should be able to (i) Describe the reaction of alkaline-earth metals with cold water	• Carrying out experiments on reaction of alkaline-earth metals with cold water • Discussion on the observed results on the experiments	• Test tubes • Bunsen burner • Wooden splint • Filter funnel • Filter paper • Magnesium • Calcium • Phenolphthalein • Distilled water	• Comprehensive secondary chemistry students book 2 pages 38-39 • Comprehensive chemistry teachers book 2 pages 18-21 • Longhorn secondary chemistry book 2 pages 64 • Secondary chemistry-KLB students book 2 page 33	
	3-4	Chemical families: Pattern in properties	Alkaline-earth metals	By the end of the lesson, the learner should be able to (i) Describe the reaction of alkaline-earth metals with cholorine gas	• Carrying out experiments on reaction of alkaline-earth metal with chlorine gas • Observing and describing the reaction of group II metals with chlorine gas	• Gas jar • Deflagrating spoon • Bunsen burner • Magnesium ribbon • Calcium • Chlorine gas	• Comprehensive secondary chemistry students book 2 pages 39-40 • Comprehensive chemistry teachers book 2 pages 18-21 • Longhorn secondary chemistry book 2 pages 65-66 • Secondary chemistry-KLB students book 2	

							page 33	
13	**1-2**	Chemical families: patterns in properties	Alkaline-earth metals	By the end of the lesson, the learner should be able to (i) Describe the reaction of alkaline-earth metals with dilute acids	• Carrying out experiments on reaction of magnesium and calcium with dilute acids • Writing of relevant equations	• 3 test-tubes • Bunsen burner • Test-tube rack • Measuring cylinder • Dilute sulphuric acid • Dilute hydrochloric acid • Magnesium ribbon • calcium	• Comprehensive secondary chemistry students book 2 pages 40-41 • Comprehensive chemistry teachers book 2 pages 18-21 • Longhorn secondary chemistry book 2 pages 69 • Secondary chemistry-KLB students book 2 page 33	
	3-4	Chemical families: pattern in properties	Importance of alkaline-earth metals	By the end of the lesson, the learner should be able to (i) Explain the similarities in formulae of alkaline earth compounds (ii) Explain the importance of group II metals	• Discussing the importance of group II metals • Explaining the similarities in formulae of alkaline earth compounds	• Chart on the importance of alkaline-earth metals	• Comprehensive secondary chemistry students book 2 pages 41-42 • Comprehensive chemistry teachers book 2 pages 18-21 • Longhorn secondary chemistry book 2 pages 72 • Secondary chemistry-KLB students book 2 page 49	
REVISION AND END TERM EXAMINATION								
CHEMISTRY FORM 2 SCHEMES OF WORK – TERM 2								
WEEK	**LESSON**	**TOPIC**	**SUB - TOPIC**	**OBJECTIVES**	**LEARNING/TEACHING ACTIVITIES**	**LEARNING/TEACHING RESOURCES**	**REFERENCES**	**REMARKS**
1	**1-4**	Revision	Revision of term one's work	By the end of the lesson, the learner should be able to	• Answering questions • Quiz	• Assignments • Quiz • Revision	• Comprehensive secondary chemistry students book 2	

				(i) Identify and explain concept learnt in tem one	• Discussion on topic previously covered	questions	pages 1-68 • Objectives in Longhorn secondary chemistry book 2 pages 1-71 • Secondary chemistry-KLB students book 2 page 1-41	
2	**1-2**	Chemical families: patterns in properties	Halogens	By the end of the lesson, the learner should be able to (i) Locate the position of halogens in the periodic table (ii) Name the halogens giving their electronic arrangements and their valance	• Discussion on location of halogens in the periodic table • Identifying halogens • Writing the electron arrangement of halogens	• Periodic table	• Comprehensive secondary chemistry students book 2 pages 43-44 • Comprehensive chemistry teachers book 2 pages 21-25 • Longhorn secondary chemistry book 2 pages 72-73 • Secondary chemistry-KLB students book 2 page 41	
	3-4	Chemical families: patterns in properties	Physical properties of halogens	By the end of the lesson, the learner should be able to (i) Explain the physical properties of halogens (ii) Give the formulae of metal halides of sodium, calcium, iron, phosphorous (iii) Explain the changes of ionic and atomic radii down the group	• Explain the physical properties of halogens • Writing the formulae of Ha, Ca, Fe, ph • Explain the changes of ionic and atomic radii down the group	• Periodic table • Chart showing table on physical properties of halogens	• Comprehensive secondary chemistry students book 2 pages 44-46 • Comprehensive chemistry teachers book 2 pages 21-25 • Longhorn secondary chemistry book 2 pages 73 • Secondary chemistry-KLB students book 2 page 42	

3	**1-2**	Chemical families: patterns in properties	Halogens	By the end of the lesson, the learner should be able to (i) Describe the reaction of halogens with metals	• Carrying out experiments to investigate the reaction between halogens and metals • Discussion on the results obtained	• Apparatus and chemicals listed on page 47 • Students book	• Comprehensive secondary chemistry students book 2 pages 47-49 • Comprehensive chemistry teachers book 2 pages 21-25 • Longhorn secondary chemistry book 2 pages 78 • Secondary chemistry-KLB students book 2 page 45	
	3-4	Chemical families: Patterns in properties	Halogens	By the end of the lesson, the learner should be able to (i) Describe the reaction between halogens and water	• Carrying out experiments to investigate the reaction between halogens and water • Discussion on observation made	• Chlorine gas • Generator • 2 test tubes • Measuring cylinder • Spatula • KMnO4 • Concentrated HCL • Bronure iodine • Distilled water	• Comprehensive secondary chemistry students book 2 pages 49-50 • Comprehensive chemistry teachers book 2 pages 21-30 • Longhorn secondary chemistry book 2 pages 76 • Secondary chemistry-KLB students book 2 page 45	
4	**1-2**	Chemical families: patterns in properties	Halogens	By the end of the lesson, the learner should be able to (i) Explain the similarities of halogen ions (ii) Explain the similarities in formulae of halogen compounds	• Explaining similities of halogen ions • Explaining similarities in formulae of halogen compounds	• Chart showing formulae of some metallic haloids • Chart showing formulae of halogens halides	• Comprehensive secondary chemistry students book 2 pages 50-52 • Comprehensive chemistry teachers book 2 pages 21-30 • Longhorn secondary chemistry book 2 pages 83 • Secondary chemistry-KLB students book 2	

							page 45	
	3-4	Chemical families: patterns in properties	Uses of halogens and their compounds	By the end of the lesson, the learner should be able to (i) State the uses of halogens and their compounds	• Stating and discussing the uses of halogens	• A chart on uses of halogens	• Comprehensive secondary chemistry students book 2 pages 51-52 • Comprehensive chemistry teachers book 2 pages 21-25 • Longhorn secondary chemistry book 2 pages 85 • Secondary chemistry-KLB students book 2 page 49	
5	**1-2**	Chemical families: pattern in properties	Properties of halogens	By the end of the lesson, the learner should be able to (i) State the physical properties of halogens	• Discussion on physical and chemical properties of halogens	• Periodic table • Table on summary of properties of halogens	• Comprehensive secondary chemistry students book 2 pages 27-54 • Comprehensive chemistry teachers book 2 pages 21-25 • Longhorn secondary chemistry book 2 pages 73 • Secondary chemistry-KLB students book 2 page 42	
	3-4	Chemical families: pattern in properties	Noble gases	By the end of the lesson, the learner should be able to: (i) Locate the position of noble gases in the periodic table (ii) Give the electronic arrangement	• Locating and identifying noble gases in the periodic table • Drawing the electronic arrangement of noble gases • Explain the properties of noble gases	• Periodic table • Char on properties of noble gases	• Comprehensive secondary chemistry students book 2 pages 54-56 • Comprehensive chemistry teachers book 2 pages 26 • Longhorn secondary chemistry book 2	

				of noble gases (iii) Give at least 5 properties of noble gases (iv) Explain the uses of noble gases	• Explaining the uses of noble gases		pages 86 • Secondary chemistry-KLB students book 2 page 50	
6	**1-2**	Chemical families: Pattern in properties	Properties and periods across a period	By the end of the lesson, the learner should be able to (i) Identify the elements in a given period (ii) Write the electron arrangement of the elements in a given period	• Identifying elements in a given period • Writing the electron arrangements of the elements in a given period	• Periodic table	• Comprehensive secondary chemistry students book 2 pages 56-57 • Comprehensive chemistry teachers book 2 pages 27-31 • Longhorn secondary chemistry book 2 pages 88-101 • Secondary chemistry-KLB students book 2 page 50	
	3-4	Chemical families: pattern properties	Properties and trends across a period	By the end of the lesson, the learner should be able to (i) State and explain the trends in physical properties of elements in a period	• Discussion on the trends in physical properties of elements in period	• Periodic table • Chart on physical properties of elements in a period	• Comprehensive secondary chemistry students book 2 pages 58-60 • Comprehensive chemistry teachers book 2 pages 27-31 • Longhorn secondary chemistry book 2 pages 88-101 • Secondary chemistry-KLB students book 2 page 52	
7	**1-2**	Chemical families: Pattern in properties	Properties and trends across a period	By the end of the lesson, the learner should be able to (i) State and	• Discussion on the trends in chemical behavior of elements in a given	• Periodic table • Chart showing reactions of elements with	• Comprehensive secondary chemistry students book 2 pages 60-64	

				explain the trends in chemical behaviors of elements in a period	period	oxygen, water and dilute acids	• Comprehensive chemistry teachers book 2 pages 27-31 • Longhorn secondary chemistry book 2 pages 88-101	
	3-4	Structure and bonding	Types of bonding	By the end of the lesson, the learner should be able to able to (i) Define the term bonding and structure (ii) Name the types of bonding and related structures (iii) Define ionic bonding	• Naming types of bonding and related structures • Define the terms structure and bonding	• Models of common structures	• Comprehensive secondary chemistry students book 2 pages60-70 • Comprehensive chemistry teachers book 2 pages 38-43 • Longhorn secondary chemistry book 2 pages 105 • Secondary chemistry-KLB students book 2 page 62	
8	**1-2**	Structure and bonding	The role of the outer electrons in electrical bond	By the end of the lesson, the learner should be able to (i) Describe the role of the outer most electrons in determining chemical bonding	• Describing the role of outer electrons in determining chemical bonding	• Chart on electron arrangement and stability	• Comprehensive secondary chemistry students book 2 pages69 • Comprehensive chemistry teachers book 2 pages 38-43 • Longhorn secondary chemistry book 2 pages 105-108 • Secondary chemistry-KLB students book 2 page 62	
	3-4	Structure and bonding	The noble gases, electron arrangements	By the end of the lesson, the learner should be able to	• Explaining the noble gas electron arrangement	• Chart on noble gas electron arrangement	• Comprehensive secondary chemistry students book 2	

				(i) Explain the noble gas-electron arrangement			pages69-70 • Comprehensive chemistry teachers book 2 pages 38-43 • Longhorn secondary chemistry book 2 pages 109 • Secondary chemistry-KLB students book 2 page 62	
9	**1-2**	Structure and bonding	Electron transfer and ionic bonding	By the end of the lesson, the learner should be able to explain electron transfer and ionic bonding	• Explain electron transfer and ionic bonding	• Chart on bond type and structure	• Comprehensive secondary chemistry students book 2 pages 70-74 • Comprehensive chemistry teachers book 2 pages 38-43 • Longhorn secondary chemistry book 2 pages 108-109 • Secondary chemistry-KLB students book 2 page 62	
	3-4	Structure and bonding	Electron sharing and covalent bonding	By the end of the lesson, the learner should be able to (i) Define covalent bonding (ii) Give examples of covalent compounds (iii) Give four properties of covalent compounds	• Defining covalent bonding • Listing examples of covalent compounds • Stating 4 properties of covalent compounds	• Chart on covalent bonding	• Comprehensive secondary chemistry students book 2 pages 74-75 • Comprehensive chemistry teachers book 2 pages 38-43 • Longhorn secondary chemistry book 2 pages 110-112 • Secondary chemistry-KLB students book 2 page 65	
10	**1-2**	Structure and	Use of dots (.) and	By the end of the lesson,	• Drawing structures	• Chart on	• Comprehensive	

		bonding	cross (x) to illustrate bonding	the learner should be able to (i) Use dot and cross to illustrate bonding	to illustrate bonding using dot and cross	examples of illustrated bonding using dots and cross	secondary chemistry students book 2 pages 74-76 • Comprehensive chemistry teachers book 2 pages 38-43 • Longhorn secondary chemistry book 2 pages 114 • Secondary chemistry-KLB students book 2 page 62	
	3-4	Structure and bonding	Hydrogen bonding	By the end of the lesson, the learner should be able to (i) Explain hydrogen bonding	• Describing hydrogen bonding	• Chart on hydrogen bonding	• Comprehensive secondary chemistry students book 2 pages 76-78 • Comprehensive chemistry teachers book 2 pages 38-43 • Longhorn secondary chemistry book 2 pages 119 • Secondary chemistry-KLB students book 2 page 70	
11	**1-2**	Structure and bonding	Co-ordinate covalent bonding	By the end of the lesson, the learner should be able to (i) Illustrate covalent bonding using diagrams (ii) Explain the properties of covalent substances	• Illustrating covalent bonding • Explaining properties of covalent compounds	• Chart showing covalent bonding • Chart on properties of covalent compounds	• Comprehensive secondary chemistry students book 2 pages 78-82 • Comprehensive chemistry teachers book 2 pages 38-43 • Longhorn secondary chemistry book 2 pages 112 • Secondary chemistry-KLB students book 2	

							page 68	
	3-4	Structure and bonding	Types of bonding in period 3	By the end of the lesson, the learner should be able to (i) Select appropriate materials for use based on bond type	• Explaining bond type changes a cross a period	• Chart on bonding of oxides and chlorides of period 3 elements	• Comprehensive secondary chemistry students book 2 pages 82-83 • Comprehensive chemistry teachers book 2 pages 38-43 • Longhorn secondary chemistry book 2 pages 120-121 • Secondary chemistry-KLB students book 2 page 68	
12	**1-2**	Structure and bonding	Application	By the end of the lesson, the learner should be able (i) Select appropriate materials for use based on bond type	• Discussion on various fields of areas in which the knowledge of bonding and structure is applied	• Pictures and photographs from scientific journals	• Comprehensive secondary chemistry students book 2 pages 83-84 • Comprehensive chemistry teachers book 2 pages 38-43 • Longhorn secondary chemistry book 2 pages 123 • Secondary chemistry-KLB students book 2 page 72-73	
	3-4	Structure and bonding	project	By the end of the lesson, the learner should be able to (i) Make a model of the structure of diamond	• Using sticks and plasticine to make a model of the structure of diamond	• Smooth sticks • plasticine	• Comprehensive secondary chemistry students book 2 pages 84-85 • Comprehensive chemistry teachers book 2 pages 38-43 • Longhorn secondary chemistry book 2	

							pages 115 • Secondary chemistry-KLB students book 2 page 71	
13	**1-2**	salts	Methods of preparing soluble salts	By the end of the lesson, the learner should be able to (i) Prepare soluble salts by the reaction of acid with metals and metal hydroxides	• Carrying out experiments on salt preparation by reaction of acids with metals and metal hydroxides • Discussion on results of experiments	• 2NHCL • Zinc powder • 2MNaOH • Phenolphthalein • Distilled water • Necessary apparatus	• Comprehensive secondary chemistry students book 2 pages 86-88 • Comprehensive chemistry teachers book 2 pages 50-62 • Secondary chemistry-KLB students book 2 page 87	
	3-4	Salt	Methods of preparing soluble salts	By the end of the lesson, the learner should be able to (i) Prepare soluble salts by the reaction of acids with metal carbonates, metal oxides and metal hydrogen carbonates	• Carrying out experiments to prepare salts by the reaction of acids with metal carbonate, metal oxides and metal hydrogen carbonate • Discussion on the results observed from the experiments	• $2MH_2SO_4$ • Sodium carbonate • $250cm^3$beaker • Conical flask • Filter funnel • Filter paper • Spatula • Glass rod • Measuring cylinder	• Comprehensive secondary chemistry students book 2 pages 88-89 • Comprehensive chemistry teachers book 2 pages 50-62 • Longhorn secondary chemistry book 2 pages 130-148 • Secondary chemistry-KLB students book 2 page 87	

REVISION AND END OF TERM EXAMS

CHEMISTRY FORM 2 SCHEMES OF WORK – TERM 3

WEEK	**LESSON**	**TOPIC**	**SUB - TOPIC**	**OBJECTIVES**	**LEARNING/TEACHING ACTIVITIES**	**LEARNING/TEACHING RESOURCES**	**REFERENCES**	**REMARKS**
1	**1-2**	Salts	Preparation of salts	By the end of the lesson, the learner should be able to (i) Describe	• Describing the preparation of insoluble salts by precipitation	• Chart showing covalent insoluble salts and ionic	• Comprehensive secondary chemistry students book 2 pages 89	

				preparation of insoluble salts by precipitation (ii) Write correct ionic equations for preparation of salts	• Writing ionic equations for preparation of salts	equations for preparation of salts	• Comprehensive chemistry teachers book 2 pages 50-62 • Longhorn secondary chemistry book 2 pages 139 • Secondary chemistry-KLB students book 2 page 94	
	3-4	salts	Preparation of salts through direct combination methods Types of salts	By the end of the lesson, the learner should be able to (i) Describe preparation of salts by direct combination (ii) Explain the terms saturation crystallization , neutralization and precipitation (iii) State types of salts	• Explaining precipitation of salts by direct combination • Defining the forms crystallization, saturation , neutralization and precipitation • Listing types of salts	• Chart showing types of salts • Chart showing examples of salts that can be prepared by direct combination	• Comprehensive secondary chemistry students book 2 pages 89-91 • Comprehensive chemistry teachers book 2 pages 50-62 • Longhorn secondary chemistry book 2 pages 137-139 • Secondary chemistry-KLB students book 2 page 92	
2	**1-2**	Salts	Solubility of salts	By the end of the lesson, the learner should be able to (i) Identify soluble and insoluble salts	• Discussion on soluble salts • Explaining the relationship between method of preparation and solubility of salts	• Chart on graph showing some solubility curves	• Comprehensive secondary chemistry students book 2 pages 91-93 • Comprehensive chemistry teachers book 2 pages 50-62 • Longhorn secondary chemistry book 2 pages 149 • Secondary chemistry-KLB students book 2	

							page 82	
	3-4	salts	Action of heat on salts	By the end of the lesson, the learner should be able to (i) Describe and explain the action of heat on various salts	• Explaining the action of heat on carbonates, nitrates, sulphates and hydrated salts based on experimental observation	• Bunsen burner • Glass rod • Lime water • Litmus paper • Spatula • Wooden splint • Various salts	• Comprehensive secondary chemistry students book 2 pages 93-99 • Comprehensive chemistry teachers book 2 pages 50-62 • Longhorn secondary chemistry book 2 pages 152 • Secondary chemistry-KLB students book 2 page 99	
3	**1-2**	Salts	Application	By the end of the lesson, the learner should be able to state the uses of some salts	• Explaining various uses of salts	• Articles from scientific magazines and journals	• Comprehensive secondary chemistry students book 2 pages 100 • Comprehensive chemistry teachers book 2 pages 50-62 • Longhorn secondary chemistry book 2 pages 161 • Secondary chemistry-KLB students book 2 page 96	
	3-4	Effects of an electric current on substances	Conduction of electricity by solids	By the end of the lesson, the learner should be able to (i) Define the terms conductor, non-conductor, electrolyte and non-electrolyte	• Defining the terms conductor, electrolyte and non-electrolyte • Carrying out experiments to investigate the solids that conduct electricity	• Battery • Torch bulb • Crocodile clips • Various solids	• Comprehensive secondary chemistry students book 2 pages 100 • Comprehensive chemistry teachers book 2 pages 50-62 • Longhorn secondary chemistry book 2	

				(ii) Test for conduction of electricity by solids			pages 161 • Secondary chemistry-KLB students book 2 page 105	
4	**1-2**	Effects of electric current on substances	Conduction of electricity by molten substances	By the end of the lesson, the learner should be able to (i) Identify molten substances that conduct electricity	• Carrying and experiments to investigate conduction of electricity by molten substances • Discussion on result observed	• Batteries • Wires • Torch bulbs • Crucible • Bunsen burner • Tripod stand • Various chemicals	• Comprehensive secondary chemistry students book 2 pages 104-105 • Comprehensive chemistry teachers book 2 pages 63-71 • Longhorn secondary chemistry book 2 pages 170 • Secondary chemistry-KLB students book 2 page 107	
	3-4	Effects of an electric current on substances	Conduction of electricity by solutions	By the end of the lesson, the learner should be able to (i) Test for conduction of electricity in solutions	• Carrying and experiments to investigate conduction of electricity in aqueous solution • Discussion on results observed	• Battery • Wires • Torch bulb • Crocodile clip • Beaker • Various aqueous solutions	• Comprehensive secondary chemistry students book 2 pages 104-105 • Comprehensive chemistry teachers book 2 pages 63-71 • Longhorn secondary chemistry book 2 pages 171 • Secondary chemistry-KLB students book 2 page 109	
5	**1-2**	Effects of an electric current on substances	Electricity	By the end of the lesson, the learner should be able to: (i) State the products of electrolysis of a binary electrolyte (ii) Explain the process of	• Explaining the process of electrolysis • Defining the terms cathode and anode • Carrying out experiments to investigate the	• Battery • Crocodile chip • Microscope slide • Pair of scissors • Filter paper • Various electrolytes	• Comprehensive secondary chemistry students book 2 pages 107-110 • Comprehensive chemistry teachers	

				electrolysis (iii) Define the terms anode and cathode	movement of air through an electrolyte		book 2 pages 63-76 • Longhorn secondary chemistry book 2 pages 174-175 • Secondary chemistry-KLB students book 2 page 111	
	3-4	Effects of electric current on substances	Application	By the end of the lesson, the learner should be able to (i) State some applications of electrolysis	• Discussion on the application of electrolysis • Such as in electroplating extruder of metals and purification of metals	• Articles and photographs from scientific magazines and journals	• Comprehensive secondary chemistry students book 2 pages 111-112 • Comprehensive chemistry teachers book 2 pages 63-76 • Longhorn secondary chemistry book 2 pages 177-178 • Secondary chemistry-KLB students book 2 page 113	
6	**1-2**	Carbon and its compounds	Forms of carbon	By the end of the lesson, the learner should be able to (i) Define allotropy and allotropes (ii) Explain the physical properties of carbon allotropes (iii) State some uses of carbon	• Defining the terms allotropy and allotropes • Explaining the physical properties of diamond and graphite • Discussion on uses of carbon (diamond and graphite)	• Models of the structure of diamond and graphite • Charts showing models of diamond and graphite	• Comprehensive secondary chemistry students book 2 pages 116-117 • Comprehensive chemistry teachers book 2 pages 77-97 • Longhorn secondary chemistry book 2 pages 180-185 • Secondary chemistry-KLB students book 2 page 115	
	3-4	Carbon and its compounds	Amorphous forms of carbon	By the end of the lesson, the learner should be able to (i) Explain the	• Explaining the physical properties of amorphous forms of carbon	• Photographs of charcoal • charcoal	• Comprehensive secondary chemistry students book 2 pages 116-119	

				physical properties of amorphous carbon (ii) State some uses of amorphous carbon such as charcoal	• Discussion on uses of amorphous form of carbon		• Comprehensive chemistry teachers book 2 pages 77-97 • Longhorn secondary chemistry book 2 pages 186-187 • Secondary chemistry-KLB students book 2 page 117	
7	**1-2**	Carbon and its compound	Chemical properties of carbon	By the end of the lesson, the learner should be able to (i) Describe the behavior of carbon when burnt (ii) Describe the reaction of carbon with acids	• Carrying out experiments to investigate what happens to wood charcoal when burnt • Carrying out experiments to investigate the reactions of carbon with acids	• Gas jar with cover • Bunsen burner • Measuring cylinder • Lime water • Wood charcoal • Con. HCL and H_2SO_4	• Comprehensive secondary chemistry students book 2 pages 120-121 • Comprehensive chemistry teachers book 2 pages 77-97 • Longhorn secondary chemistry book 2 pages 186-187 • Secondary chemistry-KLB students book 2 page 117	
	3-4	Carbon and its compounds	Chemical properties of carbon	By the end of the lesson, the learner should be able to (i) Describe the reducing action of carbon	• Explaining the reducing action of carbon • Carrying out an experiment to investigate the reaction between wood charcoal and copper (II) oxide • Discussion on results of the experiments	• Spatula • Hard glass • Test tube • Stand and clump • 250 cm^3beaker • Test tube holder • Burner • Wood charcoal • Copper (II) Oxide • Water • Lime water	• Comprehensive secondary chemistry students book 2 pages 121-123 • Comprehensive chemistry teachers book 2 pages 77-97 • Longhorn secondary chemistry book 2 pages 186-187 • Secondary chemistry-KLB students book 2 page 117	
8	**1-2**	Carbon and its compounds	Preparation and properties of	By the end of the lesson, the learner should be able	• Carrying out experiments to	• Flat-bottomed flask	• Comprehensive secondary chemistry	

			carbon (iv) oxide	to (i) Describe laboratory preparation of carbon (iv) oxide (ii) Describe the physical properties of carbon (iv) oxide	• prepare carbon (iv) oxide in the laboratory • Explaining the physical properties of carbon (iv) oxide	• 2 conical flask • Gas jar with covers • Thistle funnel with tap • Delivery tube • Marble chips • Dilute HCL • Dilute water	students book 2 pages 123-126 • Comprehensive chemistry teachers book 2 pages 77-97 • Longhorn secondary chemistry book 2 pages 190-193 • Secondary chemistry-KLB students book 2 page 121	
	3-4	Carbon and its compounds	Properties of carbon (iv) oxide	By the end of the lesson, the learner should be able to (i) State and describe the chemical properties of carbon (iv)oxide	• Explaining the reaction of carbon (iv) oxide with water, alkalis and burning magnesium • Discussion on some uses of carbon (iv) oxide	• Flat-bottomed flask • Stand and clump • Dripping funnel • Trough • Bee-hive shelf • Measuring cylinder • Spatula • Methanol acid • Conc. H_2SO_4	• Comprehensive secondary chemistry students book 2 pages 131-133 • Comprehensive chemistry teachers book 2 pages 77-97 • Longhorn secondary chemistry book 2 pages 193-195 • Secondary chemistry-KLB students book 2 page 122-123	
9	**1-2**	Carbon and its compound	Preparations and properties of Carbon (iv) oxide should only be prepared on a form chamber	By the end of the lesson, the learner should be able to (i) Describe laboratory preparation of carbon (ii) oxide (ii) Describe the physical properties of carbon (ii) oxide	• Carrying out an experiment to prepare carbon (ii) oxide in the laboratory • Explaining the physical properties of carbon (ii) oxide	• Flat-bottomed flask • Stand clamp • Dropping funnel • Trough • Bee-hive shelf • Measuring cylinder • Spatula • Methanol acid • Con H_2SO_4 • Water	• Comprehensive secondary chemistry students book 2 pages 131-133 • Comprehensive chemistry teachers book 2 pages 77-97 • Longhorn secondary chemistry book 2 pages 197-199 • Secondary chemistry-KLB students book 2 page 125-126	

	3-4	Carbon and its compound	Chemical properties of carbon (II) oxide	By the end of the lesson, the learner should be able to: (i) State and describe the chemical properties of carbon (II) oxide (ii) State some uses of Carbon (II) oxide	• Explain the chemical properties of Carbon (II) oxide • Discussion on the uses of Carbon (II) oxide • Comparing Carbon (IV) oxide and Carbon (II) oxide	• Chart showing a comparison between carbon (IV) oxide and carbon (II) oxide	• Comprehensive secondary chemistry students book 2 pages 131-136 • Comprehensive chemistry teachers book 2 pages 77-97 • Longhorn secondary chemistry book 2 pages 201-203 • Secondary chemistry-KLB students book 2 page 128	
10	**1-2**	Carbon and its compounds	Carbonates and hydrogen carbonates	By the end of the lesson, the learner should be able to (i) Describe the chemical reactions of carbonates	• Carrying out experiments to investigate the action of heat and dilute acids on carbonates • Discussion on observed results on the experiments	• Test tubes, test tube rack, Bunsen burner, • Spatula • Stand and clamp • Beaker and test tube with side arm • Dilute HCL • Lime water and various carbonates	• Comprehensive secondary chemistry students book 2 pages 137-139 • Comprehensive chemistry teachers book 2 pages 77-97 • Longhorn secondary chemistry book 2 pages 206 • Secondary chemistry-KLB students book 2 page 130-131	
	3-4	Carbon and its compounds	Carbonates and hydrogen carbonates	By the end of the lesson, the learner should be able to (i) Describe the chemical reaction of hydrogen carbonates	• Carrying out experiments to investigate the action of heat and dilute acids on hydrogen carbonates • Discussion on the observed results observation from the experiments	• Two test-tubes • Stand and clamp • Delivery tube • Bunsen burner • Spatula and test tube with side arm • Lime water and sodium and calcium hydrogen carbonates	• Comprehensive secondary chemistry students book 2 pages 139-141 • Comprehensive chemistry teachers book 2 pages 77-97 • Secondary chemistry-KLB students book 2 page 130	

11	**1-2**	Carbon and its compounds	Production and manufacture of sodium carbonate (soda ash)	By the end of the lesson, the learner should be (i) Able to describe the manufacture of sodium carbonate	• Explaining the stages of solvary process	• Chart showing the solvary process • A flow diagram of the solvary process	• Comprehensive secondary chemistry students book 2 pages 141-144 • Comprehensive chemistry teachers book 2 pages 77-97 • Secondary chemistry-KLB students book 2 page 134	
	3-4	Carbon and its compounds	Extraction of sodium carbonate (soda ash) from lake Magadi	By the end of the lesson, the learner should be able to (i) Describe the extraction of sodium carbonate from lake Magadi	• Explaining the extraction of sodium carbonate (soda ash) from lake Magadi	• A chart showing the process of producing soda ash	• Comprehensive secondary chemistry students book 2 pages 144-145 • Comprehensive chemistry teachers book 2 pages 77-97 • Secondary chemistry-KLB students book 2 page 134	
12	**1-2**	Carbon and its compound	The importance of carbon and its oxides	By the end of the lesson, the learner should be able to (i) Explain the importance of carbon compounds in the natural environment and industry	• Explaining the carbon oxide • Discussion on manufacture of soft drinks and fire extinguishers	• Chart showing flow diagram of carbon cycle	• Comprehensive secondary chemistry students book 2 pages 145-147 • Comprehensive chemistry teachers book 2 pages 77-97 • Secondary chemistry-KLB students book 2 page 135-136	
	3-4	Carbon and its compounds	The importance of carbon and its oxides	By the end of the lesson, the learner should be able to (i) Explain the importance of carbon and its compounds	• Explain the effect of carbon (iv) oxide on the environment	• Articles and photographs from scientific magazines and journals	• Comprehensive secondary chemistry students book 2 pages 147-148 • Comprehensive chemistry teachers book 2 pages 77-97 • Secondary chemistry-	

				in the natural environment and in industry			KLB students book 2 page 137-138	
REVISION AND END OF YEAR EXAMINATION								
CHEMISTRY FORM 3 SCHEMES OF WORK – TERM 1								
WEEK	**LESSON**	**TOPIC**	**SUB - TOPIC**	**OBJECTIVES**	**LEARNING/TEACHING ACTIVITIES**	**LEARNING/TEACHING RESOURCES**	**REFERENCES**	**REMARKS**
1	**1-2**	Gas Law	Boyels' Law	By the end of the lesson, the learner should be able to (i) State Boyles' law (ii) Carry out an experiment to investigate Boyle's law	• Demonstration to verify Boyle's law recording observations • Discussions based on observations • Drawing of pagenist and- against i/p graphs	• Bourn on gauge • Pump • Scale strip • Delivery tubes with connections • Graph papers • Panels	• Comprehensive secondary chemistry students book 3 pages 1-4 • Comprehensive chemistry teachers book 3 pages 4-5 • Longhorn secondary chemistry book 2 pages 206 • Secondary chemistry- KLB students book 3 page 1 • Secondary chemistry form 3 Patel page 5	
	3-4	Gas laws	Charles' Law	By the end of the lesson, the learner should be able to (i) State Charles' law	• Demonstration to verify Charles law • Recording observations • Discussions based on observations • Representing Charles law graphically	• Concentrated Sulphuric acid • Water and ice • Thermometer • Capillary tube • 250cm^3 beaker • Bunsen burner • Tripod stand • Wire gauge	• Comprehensive secondary chemistry students book 3 pages 4-6 • Comprehensive chemistry teachers book 3 pages 6-8 • Longhorn secondary chemistry book 2	

							pages 8 • Secondary chemistry-KLB students book 3 page 6 • Secondary chemistry form 3 Patel page 7	
	5	Gas Laws	Combined gas law	By the end of the lesson, the learner should be able to (i) Use the combined gas laws to carry out calculations	• Discussion on combined gas laws • Calculating sums involving combined gas laws	• Charts showing steps involved in the use of combined gas law	• Comprehensive secondary chemistry students book 3 pages 6-7 • Comprehensive chemistry teachers book 3 pages 6-9 • Longhorn secondary chemistry book 2 pages 11 • Secondary chemistry-KLB students book 3 page 13 • Secondary chemistry form 3 Patel page 9	
2	**4-5**	Gas Law	Movement of particles of diffusion in gases	By the end of the lesson, the learner should be able to (i) Explain diffusion in liquids in terms of kinetic theory	• Carrying out experiments of diffusion of gases • Listing the real-life situations where concept of diffusion is applied	• Perfume • Chart showing applications of diffusion in real life situation	• Comprehensive secondary chemistry students book 3 pages 12-13 • Comprehensive chemistry teachers book 3 pages 11 • Longhorn secondary chemistry book 2 pages 14 • Secondary chemistry-KLB students book 3 page 16 • Secondary chemistry form 3 Patel	
3	**1-2**	Gas law	Grahams' Law of	By the end of the lesson,	• Demonstration on	• Concentrated	• Comprehensive	

			diffusion	the learner should be able to relate the note of diffusion to relative molecular mass of a gas	diffusion of ammonia and hydrogen chloride • Recording observations • Discussion based on the observations	ammonia • Concentrated hydrochloric acid • Glass tube • 2 stands and clamps • Stop-watch • Cotton-wool • Meter note	secondary chemistry students book 3 pages 13-16 • Comprehensive chemistry teachers book 3 pages 11 • Longhorn secondary chemistry book 2 pages 14 • Secondary chemistry-KLB students book 3 page 16 • Secondary chemistry form 3 Patel page 11	
	3-4	Gas law	Grahams' Law of diffusion	By the end of the lesson, the learner should be able to (i) Relate the rate of diffusion to the relative molecular of mass of a gas	• Discussion based on the mathematical aspect of Grahams Law of diffusion • Calculating sum involving Graham's law of diffusion	• Chart showing calculation that relate to Grahams' law of diffusion	• Comprehensive secondary chemistry students book 3 pages 13-16 • Comprehensive chemistry teachers book 3 pages 11 • Longhorn secondary chemistry book 2 pages 14 • Secondary chemistry-KLB students book 3 page 16 • Secondary chemistry form 3 Patel page 17-19	
	5	Gas law	Grahams' Law of diffusion	By the end of the lesson, the learner should be able to (i) Carry out calculations involving Grahams' law of diffusion	• Discussion based on Grahams' law of diffusion • Calculating grahams' law of diffusion	• Chart showing relationship between diffusion with density and time	• Comprehensive secondary chemistry students book 3 pages 13-16 • Comprehensive chemistry teachers book 3 pages 11 • Longhorn secondary	

							chemistry book 2 pages 14 • Secondary chemistry-KLB students book 3 page 16 • Secondary chemistry form 3 Patel page 12-13	
4	**1-2**	The mole, formulae and chemical equations	The mole	By the end of the lesson, the learner should be able to (i) Define the mole	• Defining the term mole • Calculations and discussion on the mole	• Measuring cylinder • Electronic balance • Stop-watch • Thermometer	• Comprehensive secondary chemistry students book 3 pages 20-22 • Comprehensive chemistry teachers book 3 pages 18-19 • Longhorn secondary chemistry book 2 pages 27 • Secondary chemistry-KLB students book 3 page 29 • Secondary chemistry form 3 Patel page 21	
	3	The mole, formulae and chemical equations	The relative atomic mass	By the end of the lesson, the leaner should be able to (i) Relate the mole to relative atomic mass	• Discussion based on the relative atomic mass • Calculating sum on relative atomic mass	• Periodic table having relative atomic masses of elements	• Comprehensive secondary chemistry students book 3 pages 25-26 • Comprehensive chemistry teachers book 3 pages 18-19 • Longhorn secondary chemistry book 2 pages 33 • Secondary chemistry-KLB students book 3 page 28 • Secondary chemistry	

							form 3 Patel page 22-23	
	4-5	The mole, formulae and chemical equations	Molar mass	By the end of the lesson, the learner should be able to (i) Convert mass into moles and vice versa	• Calculations involving moles and masses • Calculating the relative molecular masses of elements	• The periodic table • Chart showing large triangle of the relationship between mass, molecular mass and mole	• Comprehensive secondary chemistry students book 3 pages 23-25 • Comprehensive chemistry teachers book 3 pages 18-19 • Longhorn secondary chemistry book 2 pages 31 • Secondary chemistry-KLB students book 3 page 42 • Secondary chemistry form 3 Patel page 23-24	
5	**1-2**	The mole, formulae and chemical equations	Empirical formulae	By the end of the lesson, the learner should be able to (i) Determine experimentally the empirical formulae of a given compound	• Demonstration on empirical formulae of magnesium oxide • Recording and discussing observations • Calculating the empirical formulae of magnesium oxide	• Magnesium ribbon dry crucible with lod • Pipe clay triangle • A pair of tongs • Bunsen burner	• Comprehensive secondary chemistry students book 3 pages 26-27 • Comprehensive chemistry teachers book 3 pages 19-20 • Longhorn secondary chemistry book 2 pages 64 • Secondary chemistry-KLB students book 3 page 35 • Secondary chemistry form 3 Patel page 23-28	
	3-4	The mole, formulae and chemical	Empirical formulae	By the end of the lesson, the learner should be able to	• Demonstration on formulae of a hydrated salt	• $CuSO_4$ • Cobalt (II) • Chloride paper	• Comprehensive secondary chemistry students book 3	

		equations		(i) Determine experimentally empirical formulae of substance	• Discussion based on observations • Calculating empirical formulae	• Aluminum foil • Cotton wool • Ruler • Beaker of water • Bunsen burner	pages 29-31 • Comprehensive chemistry teachers book 3 pages 19-20 • Longhorn secondary chemistry book 2 pages 64 • Secondary chemistry-KLB students book 3 page 35 • Secondary chemistry form 3 Patel page 30-31	
	5	The mole, formulae and chemical equations	Empirical formulae	**B**y the end of the lesson, the learner should be able to (i) determine the empirical formulae of a given data	• discussion based on enyzerical formulae • calculating empirical formulae of a given data	• charts showing how the enyzerical formulae of substances are calculated	• Comprehensive secondary chemistry students book 3 pages 31-32 • Comprehensive chemistry teachers book 3 pages 19-20 • Longhorn secondary chemistry book 2 pages 64 • Secondary chemistry-KLB students book 3 page 35 • Secondary chemistry form 3 Patel page 31-33	
6	**1-2**	The mole, formulae and chemical equations	Molecular formulae	By the end of the lesson, the learner should be able to (i) Determine the molecular formulae of substances from given data	• Discussion based on molecular formulae • Calculating molecular formulae	• Chart showing the calculations of molecular formulae	• Comprehensive secondary chemistry students book 3 pages 32-33 • Comprehensive chemistry teachers book 3 pages 19-20 • Longhorn secondary chemistry book 2	

							pages 43 • Secondary chemistry-KLB students book 3 page 73 • Secondary chemistry form 3 Patel page 34-35	
	3	The mole, formulae and chemical equations	Molecular formulae	By the end of the lesson, the learner should be able to (i) Determine the molecular formulae of substances from a given data	• Discussion based on the molecular formulae • Calculating molecular formulae	• Charts showing the calculations of molecular formulae	• Comprehensive secondary chemistry students book 3 pages 32-33 • Comprehensive chemistry teachers book 3 pages 19-20 • Longhorn secondary chemistry book 2 pages 73 • Secondary chemistry-KLB students book 3 page 43 • Secondary chemistry form 3 Patel page 34-36	
	4-5	The mole, formulae and chemical equations	Mole solutions	By the end of the lesson, the learner should be able to (i) Explain the term concentration molarity and dilution of a solution	• Carrying out experiments on molar solutions • Naming of apparatus used in preparing molar solutions • Calculating sums covering molar solutions	• Dropper • Volumetric flask • Beaker • Wash bottle • Electronic balance • Distilled water	• Comprehensive secondary chemistry students book 3 pages 33 • Comprehensive chemistry teachers book 3 pages 20 • Longhorn secondary chemistry book 2 pages 75 • Secondary chemistry-KLB students book 3 page 46 • Secondary chemistry	

							form 3 Patel page 34-39	
7	**1-2**	The mole, formulae and chemical equations	Molar solutions	By the end of the lesson, the learner should be able to (i) Define and prepare molar solutions	• Carrying out experiments to prepare molar solutions of sodium hydroxide • Recording observations • Discussion based on observations	• Sodium hydroxide • Distilled water in a wash bottle • Volumetric flask • Clean 250cm^3 beaker • Filter funnel • Electronic balance • Glass rod	• Comprehensive secondary chemistry students book 3 pages 33-34 • Comprehensive chemistry teachers book 3 pages 20 • Longhorn secondary chemistry book 2 pages 75 • Secondary chemistry-KLB students book 3 page 46 • Secondary chemistry form 3 Patel page 42-43	
	3-4	The mole, formulae and chemical equations	Calculations involving molar solutions	By the end of the lesson, the learner should be able to (i) Carry out calculations involving molar solutions	• Discussion based on chemical equation • Writing of chemical equations	• Charts showing calculations of concentrations and dilutions	• Comprehensive secondary chemistry students book 3 pages 35-40 • Comprehensive chemistry teachers book 3 pages 20 • Longhorn secondary chemistry book 2 pages 78 • Secondary chemistry-KLB students book 3 page 47 • Secondary chemistry form 3 Patel page 56	
	5	The mole formulae and chemical equations	Chemical equations	By the end of the lesson, the learner should be able to (i) Write correct	• Discussion based on chemical equations • Writing of chemical equations	• Charts showing chemical equations with the state	• Comprehensive secondary chemistry students book 3 pages 40-46	

				formulae of reactions with the correct state symbols		symbols	• Comprehensive chemistry teachers book 3 pages 21 • Longhorn secondary chemistry book 2 pages 87 • Secondary chemistry-KLB students book 3 page 54 • Secondary chemistry form 3 Patel page 42-43-44	
8	**1-2**	The mole, formulae and chemical equations	Balanced chemical equations	By the end of the lesson, the learner should be able to (i) Write correct formulae and ionic equations of reactions with state symbols		• Charts showing equations with the correct state symbols	• Comprehensive secondary chemistry students book 3 pages 40-46 • Comprehensive chemistry teachers book 3 pages 21 • Longhorn secondary chemistry book 2 pages 87 • Secondary chemistry-KLB students book 3 page 58-63 • Secondary chemistry form 3 Patel page 44	
	3-4	The mole, formulae and chemical equations	Acid-base titration	By the end of the lesson, the learner should be able to (i) Carry out acids based on titrations	• Naming of different apparatus used in titration processes • Carry out acid base titrations • Reading the meniscus of a burette correctly	• Pipette • Burette • Conical flask • Dropper • White • Filter funnel • Indicator	• Comprehensive secondary chemistry students book 3 pages 53-54 • Comprehensive chemistry teachers book 3 pages 22-24 • Longhorn secondary chemistry book 2 pages 104	

							• Secondary chemistry-KLB students book 3 page 58-63 • Secondary chemistry form 3 Patel page 64	
9	**1-2**	The mole, formulae and chemical equation	Acid-base titration	By the end of the lesson, the learner should be able to (i) Carry out titration and calculations involving solutions	• Carrying out experiments on HCL (aq) • Recording observations • Discussions based on the observations • Calculating acid-base titration	• Hydrochloric acid • 1M Na_sCo_3 • Methyl orange • Distilled water • Burette • Pipette • Clamp and stands • Beaker	• Comprehensive secondary chemistry students book 3 pages 55-56 • Comprehensive chemistry teachers book 3 pages 22-24 • Longhorn secondary chemistry book 2 pages 104 • Secondary chemistry-KLB students book 3 page 64 • Secondary chemistry form 3 Patel page 54	
	3-4	The mole, formulae and chemical equations	Redox titration	By the end of the lesson, the learner should be able to (i) Carry out titration and related calculations	• Carrying out experiments in redox reaction • Recording observations • Discussions based on the observations • Calculating sums related to titration	• Potassium manganate (VII) • Iron (II) ammonium sulphate • Burette • Pipette • Conical flask • Volumetric flask • Electronic balance	• Comprehensive secondary chemistry students book 3 pages 56-58 • Comprehensive chemistry teachers book 3 pages 24-26 • Longhorn secondary chemistry book 2 pages 114 • Secondary chemistry-KLB students book 3 page 75 • Secondary chemistry form 3 Patel page 56	
	5	The mole, formulae and	Redox reaction	By the end of the lesson, the learner should be able	• Carrying out experiments in	• Potassium dichromate (VI)	• Comprehensive secondary chemistry	

		charcoal equations		to (i) Carry out redox titration and related calculations	redox reaction • Recording observations • Discussions based on observations • Calculating sums related to titration	• Iron (II) ammonium sulphate • Distilled water • Diphenylamine indicator	students book 3 pages 59-60 • Comprehensive chemistry teachers book 3 pages 24-26 • Longhorn secondary chemistry book 2 pages 114 • Secondary chemistry-KLB students book 3 page 75 • Secondary chemistry form 3 Patel page 58	
10	**1-2**	The mole, formulae and chemical equations	Molar gas volume	By the end of the lesson, the learner should be able to (i) Define molar gas volume and carry out related calculations	• Discussion on the last gas volume • Calculating sums related to molar gas volume	• Charts showing calculations of molar gas volume	• Comprehensive secondary chemistry students book 3 pages 61-62 • Comprehensive chemistry teachers book 3 pages26 • Longhorn secondary chemistry book 2 pages 120 • Secondary chemistry-KLB students book 3 page 79 • Secondary chemistry form 3 Patel page 59	
	3-4	The mole, formulae and chemical equations	Molar gas volume	By the end of the lesson, the learner should be able to (i) Carry out titration and calculations involving molar solutions	• Discussion on molar gas volume • Calculating sums related to molar gas	• Charts showing calculation of molar gas volume	• Comprehensive secondary chemistry students book 3 pages 61-62 • Comprehensive chemistry teachers book 3 pages26 • Longhorn secondary chemistry book 2	

							pages 120 • Secondary chemistry-KLB students book 3 page 79 • Secondary chemistry form 3 Patel page 60-61	
	5	The formulae and chemical equations	Atomicity of gases	By the end of the lesson, the learner should be able to (i) Carry out titration and calculations involving molar solutions	• Explaining atomicity of different gases • Discussion based on atomicity of gases • Calculating sums related to molar solutions	• Charts showing atomicity of gases	• Comprehensive secondary chemistry students book 3 pages 62-63 • Comprehensive chemistry teachers book 3 pages26 • Longhorn secondary chemistry book 2 pages 126 • Secondary chemistry-KLB students book 3 page 79 • Secondary chemistry form 3 Patel page 64-65	
11	**1-2**	The mole, formulae and chemical equations	Avogadro's' law and the related calculations	By the end of the lesson, the learner should be able to (i) Avogadro's law and carry out related calculation	• Discussions based on Avogadro's law • Calculating sums related to Avogadro's law	• Chart showing calculations involving Avogadro's law	• Comprehensive secondary chemistry students book 3 pages 64-65 • Comprehensive chemistry teachers book 3 pages26 • Longhorn secondary chemistry book 2 pages 130 • Secondary chemistry-KLB students book 3 page 31 • Secondary chemistry	

							form 3 Patel page 59-62	
	3-4	The mole, formulae and chemical equations	• Gay Lussac's law and related calculations	By the end of the lesson, the learner should be able to state Gay Lussac's law and carry out related calculations	• Calculation of sums related to Gay Lussac's law • Discussions based on Gay Lussac's law	• Charts showing calculations involving Gay Lussac's law	• Comprehensive secondary chemistry students book 3 pages 64-65 • Comprehensive chemistry teachers book 3 pages26 • Longhorn secondary chemistry book 2 pages 127 • Secondary chemistry-KLB students book 3 page 84-85 • Secondary chemistry form 3 Patel page 59-64	
	5	The mole, formulae and chemical equation	Gay Lussac's law and related calculations	By the end of the lesson, the learner should be able to (i) State Gay Lussac's law and carry our related calculations	• Discussions based on Gay Lussac's law • Calculating sums related to Gay Lussac's law	• Charts showing calculations involving Gay Lussac's law	• Comprehensive secondary chemistry students book 3 pages 64-65 • Comprehensive chemistry teachers book 3 pages26 • Longhorn secondary chemistry book 2 pages 127 • Secondary chemistry-KLB students book 3 page 84-85 • Secondary chemistry form 3 Patel page 65-66	
REVISION AND END OF TERM EXAMINATIONS								

CHEMISTRY FORM 3 SCHEMES OF WORK – TERM 2

WEEK	LESSON	TOPIC	SUB - TOPIC	OBJECTIVES	LEARNING/TEACHING ACTIVITIES	LEARNING/TEACHING RESOURCES	REFERENCES	REMARKS
1	**1-2**	Hydro carbons	Introduction	By the of the lesson, the learner should be able (i) Define a hydro-carbon (ii) Name and draw the structure of single hydrocarbon	• Defining hydrocarbon • Drawing the structure of hydro carbonates • Assigning names of alkaline molecules	• Ball and stick models of alkaline • Chart on hydrocarbons	• Comprehensive secondary chemistry students book 3 pages 68-69 • Comprehensive chemistry teachers book 3 pages 32-34 • Longhorn secondary chemistry book 2 pages 135 • Secondary chemistry-KLB students book 3 page 92 • Secondary chemistry form 3 Patel page 74	
	3	hydrocarbons	Alkaline	By the end of the lesson, the learner should be able to (i) State the features of alkenes as a homologous series	• Drawing simple alkaline molecules • Listing features of homologous series	• Ball and stick models of alkaline • Charts showing the features of a homologous series	• Comprehensive secondary chemistry students book 3 pages 69-71 • Comprehensive chemistry teachers book 3 pages 34-37 • Longhorn secondary chemistry book 2 pages 135 • Secondary chemistry-KLB students book 3 page 93 • Secondary chemistry form 3 Patel page 75	
	4-5	Hydrocarbons	General formulae of alkaline	By the end of the lesson, the learner should be able	• Writing the general formulae of alkaline	• Thermometer • Boiling tube	• Comprehensive secondary chemistry	

			occurrence of alkenes	to (i) Write the general formulae of alkanes (ii) Explain the occurrence of alkane (iii) Describe the fractional of distillation of crude oil	• Explaining the occurrence of alkaline • Describing the fractional distillation of crude oil	• Test tube with side arm • Measuring cylinder • Bunsen burner • 4 test tubes with stoppers • 400 cm^3 beaker • Spatula • Stand with clamp	students book 3 pages 70-76 • Comprehensive chemistry teachers book 3 pages 35-37 • Longhorn secondary chemistry book 2 pages 135 • Secondary chemistry-KLB students book 3 page 93 • Secondary chemistry form 3 Patel page 76	
2	**1-2**	Hydrocarbons	Nomenclature of alkaline	By the end of the lesson, the learner should be able to (i) Name and draw simple alkalines	• Drawing simple alkaline molecules • Assigning names of alkaline molecules	• Ball and stick models of alkanes • Diagrams of alkanes on a chart	• Comprehensive secondary chemistry students book 3 pages 76-82 • Comprehensive chemistry teachers book 3 pages 35-37 • Longhorn secondary chemistry book 2 pages 135 and138 • Secondary chemistry-KLB students book 3 page 98 • Secondary chemistry form 3 Patel page 77-78	
	3	hydrocarbons	Isomerism in alkanes	By the end of the lesson, the learner should be able to (i) Name and draw isomers of alkanes	• Drawing isomers of different alkanes • Assigning names to different isomers of alkanes	• Ball and stick models of alkanes • Diagrams of different isomers on a chart	• Comprehensive secondary chemistry students book 3 pages 83-84 • Comprehensive chemistry teachers book 3 pages 36 • Longhorn secondary chemistry book 2	

							pages 141 • Secondary chemistry-KLB students book 3 page 101 • Secondary chemistry form 3 Patel page 79	
	4-5	hydrocarbons	Alkanes-preparation of methane	By the end of the lesson, the learner should be able to (i) Describe the general methods of preparing alkanes	• Carrying out experiments to prepare methane • Recording observations • Discussions based on observations	• An hydrous sodium ethane • Soda line • Bromine water • Blue cobalt chloride paper • Measuring cylinder • Separating funnel • Hard test tubes	• Comprehensive secondary chemistry students book 3 pages 91-92 • Comprehensive chemistry teachers book 3 pages 38-39 • Longhorn secondary chemistry book 2 pages 146 • Secondary chemistry-KLB students book 3 page 103 • Secondary chemistry form 3 Patel page 80-81	
3	**1-2**	hydrocarbons	Physical properties of alkanes	By the end of the lesson, the learner should be able to (i) Explain physical properties of alkanes	• Carrying out experiments on stability of alkanes • Recording observations • Discussions on the physical properties of alkanes	• Pentane • Diethyl ether • Water • Measuring cylinder • Separating funnel • Stand & clamp	• Comprehensive secondary chemistry students book 3 pages 88-93 • Comprehensive chemistry teachers book 3 pages 37-38 • Longhorn secondary chemistry book 2 pages 148 • Secondary chemistry-KLB students book 3 page 105 • Secondary chemistry form 3 Patel page 81	

	3-4	hydrocarbons	Chemical properties of alkaline	By the end of the lesson, the learner should be able to (i) Explain the chemical properties of alkaline	• Carrying out experiments on reactions of alkaline • Recording observations on the chemical properties of alkaline	• Borate • Lime water • Blue cobalt (II) chloride paper • Bromine water • Methane measuring cylinder • Wooden splint	• Comprehensive secondary chemistry students book 3 pages 91-92 • Comprehensive chemistry teachers book 3 pages 38-39 • Longhorn secondary chemistry book 2 pages 149 • Secondary chemistry-KLB students book 3 page 106 • Secondary chemistry form 3 Patel page 82	
4	**1-2**	Hydrocarbons	Use of alkaline	By the end of the lesson, the learner should be able to (i) State uses of alkaline	• Discussion on alkaline • Listing uses of alkaline	• Vaseline • Lubricants • Gloss paints • Chart showing uses of alkaline	• Comprehensive secondary chemistry students book 3 pages 95-96 • Comprehensive chemistry teachers book 3 pages 40-41 • Longhorn secondary chemistry book 2 pages 154 • Secondary chemistry-KLB students book 3 page 110 • Secondary chemistry form 3 Patel page 83	
	3	Hydrocarbons	Nomenclature of alkaline	By the end of the lesson, the learner should be able to (i) State the features of alkanes as a homologous series	• Drawing structures of alkenes • Listing the feature of alkene as homologous series	• Ball and stick model of alkenes • Diagram of alkenes on a chart • Chart showing the features of	• Comprehensive secondary chemistry students book 3 pages 97-100 • Comprehensive chemistry teachers book 3 pages 41-42 • Longhorn secondary	

						alkenes as a homologous series	chemistry book 2 pages 155 • Secondary chemistry-KLB students book 3 page 110 • Secondary chemistry form 3 Patel page 84	
	4-5	hydrocarbon	Isomerism of alkenes	By the end of the lesson, the learner should be able to (i) Draw and name isomers of alkenes	• Drawing structures of different isomers alkenes • Assigning names to isomers of alkenes	• Ball and stick model of alkenes • Chart showing isomers of different molecules	• Comprehensive secondary chemistry students book 3 pages 103-107 • Comprehensive chemistry teachers book 3 pages 43-44 • Longhorn secondary chemistry book 2 pages 161 • Secondary chemistry-KLB students book 3 page 113 • Secondary chemistry form 3 Patel page 84-85	
5	**1-2**	hydrocarbon	Preparation of alkenes	By the end of the lesson, the learner should be able to (i) Describe the preparation of alkenes	• Demonstration, preparation and properties of ethane • Recording observations • Discussion on preparation of alkenes • Writing chemical equations	• Concentrated Sulphuric acid • Ethanol • Concentrated potassium hydroxide • Gas jar • Conical flask • Round-bottomed flask	• Comprehensive secondary chemistry students book 3 pages 103-107 • Comprehensive chemistry teachers book 3 pages 43-44 • Longhorn secondary chemistry book 2 pages 161 • Secondary chemistry-KLB students book 3 page 113 • Secondary chemistry	

							form 3 Patel page 84-85	
	3	hydrocarbons	Physical properties of alkenes	By the end of the lesson, the learner should be able to (i) Explain the chemical properties of alkenes	• Carrying out experiments to investigate solubility of alkenes • Recording observations • Discussion on physical properties of alkanes	• Chart showing the physical properties of alkenes • Pent-l-ene water • Stand and clamp • Methylbenzene • Separating funnel	• Comprehensive secondary chemistry students book 3 pages 109-111 • Comprehensive chemistry teachers book 3 pages 46 • Longhorn secondary chemistry book 2 pages 165 • Secondary chemistry-KLB students book 3 page 117 • Secondary chemistry form 3 Patel page 82	
	4-5	hydrocarbon	Chemical properties of alkenes	By the end of the lesson, the learner should be able to (i) Explain the chemical properties of alkenes	• Carrying out experiments on combustion and vaporization o alkenes • Recording observations • Discussion on chemical properties of alkenes		• Comprehensive secondary chemistry students book 3 pages 109-111 • Comprehensive chemistry teachers book 3 pages 46 • Longhorn secondary chemistry book 2 pages 165 • Secondary chemistry-KLB students book 3 page 117 • Secondary chemistry form 3 Patel page 82	
6	**1**	hydrocarbon	Uses of alkenes	By the end of the lesson, the learner should be able to (i) State the uses of	• Discussions on uses of alkenes • Listing the uses of alkenes	• Charts showing the uses of alkenes • Plastic proof wear	• Comprehensive secondary chemistry students book 3 pages 112-113 • Comprehensive	

				alkenes		• Plastic hand-bag • Plastic suit cases	chemistry teachers book 3 pages 48 • Longhorn secondary chemistry book 2 pages 170 • Secondary chemistry-KLB students book 3 page 121 • Secondary chemistry form 3 Patel page 83	
	2-3	hydrocarbons	Alkynes	By the end of the lesson, the learner should be able to (i) Name and draw the structure of alkynes	• Drawing the structures of alkynes • Assigning names of alkynes molecules	• Ball and stick models of alkynes • Diagrams of alkynes on a chart	• Comprehensive secondary chemistry students book 3 pages 113-115 • Comprehensive chemistry teachers book 3 pages 48 • Longhorn secondary chemistry book 2 pages 171 • Secondary chemistry-KLB students book 3 page 122 • Secondary chemistry form 3 Patel page 87-88	
	4-5	hydrocarbons	Preparation and properties of alkynes	By the end of the lesson, the learner should be able to (i) Describe the general methods of preparing alkynes (ii) Explain the physical and chemical properties of alkynes	• Carrying out experiment to prepare ehtyne • Recording of observation • Discussion based on observation • Explaining the physical and chemical properties of alkynes	• Calcium carlide • Phenolphthalein indicator • Bromine water • Acidified potassium manganate (VII) • Round bottomed flask • Water trough • Spatula • Stand on clamp	• Comprehensive secondary chemistry students book 3 pages 116-119 • Comprehensive chemistry teachers book 3 pages 49 • Longhorn secondary chemistry book 2 pages 178 • Secondary chemistry-	

						• 4 gas jars	KLB students book 3 page 125-127 • Secondary chemistry form 3 Patel page 88-89	
7	**1-2**	hydrocarbon	Isomerism in alkynes	By the end of the lesson, the learner should be able to (i) Draw and name isomers of alkynes	• Draw isomers of different alkynes • Assign names of isomers of alkynes	• Ball and stick models of alkynes • Diagrams of alkynes on charts	• Comprehensive secondary chemistry students book 3 pages 115 • Comprehensive chemistry teachers book 3 pages 48 • Longhorn secondary chemistry book 2 pages 176 • Secondary chemistry-KLB students book 3 page 124 • Secondary chemistry form 3 Patel page 88	
	3	hydrocarbon	Uses of alkynes	By the end of the lesson, the learner should be able to (i) Describe and explain the uses of alkynes	• Discussion on uses of alkynes • Listing uses of alkynes	• Charts showing uses of alkynes • Sample of polyvinyl chloride (PVC) pipes	• Comprehensive secondary chemistry students book 3 pages 119-120 • Comprehensive chemistry teachers book 3 pages 50 • Longhorn secondary chemistry book 2 pages 183 • Secondary chemistry-KLB students book 3 page 130 • Secondary chemistry form 3 Patel page 90	
	4-5	Nitrogen and its compound	Introduction: isolation of	By the end of the lesson, the learner should be able	• Carrying out experiments on the	• 2M sodium hydroxide	• Comprehensive secondary chemistry	

			nitrogen from air	to (i) Describe the isolation of nitrogen from air	isolation of nitrogen • Recording and observation • Discussion on isolation of Nitrogen from air • Writing relevant chemical equations	• Silica tube • Copper turnings • Clamp and stand • Bycyde pump • Bee hive shelf • Gas jar	students book 3 pages 123-124 • Comprehensive chemistry teachers book 3 pages 61-64 • Longhorn secondary chemistry book 2 pages 186 • Secondary chemistry-KLB students book 3 page 135 • Secondary chemistry form 3 Patel page 92	
8	**1-2**	Nitrogen and its compound	Laboratory preparation of nitrogen and its properties	By the end of the lesson, the learner should be able to (i) Describe the laboratory preparations of nitrogen and its properties	• Demonstration on the preparation of Nitrogen gas • Recording observation • Discussion • Laboratory preparation of nitrogen • Writing chemical equations • Explaining properties of nitrogen	• Sodium nitrate • Ammonium chloride • Distilled water • Round bottomed flask • Delivery tube • Bunsen burner • Measuring cylinder • Gas jars • Stand and clamp	• Comprehensive secondary chemistry students book 3 pages 125-127 • Comprehensive chemistry teachers book 3 pages 64 • Longhorn secondary chemistry book 2 pages 189 • Secondary chemistry-KLB students book 3 page 136 • Secondary chemistry form 3 Patel page 93	
	3	Nitrogen and its compounds	Uses of nitrogen	By the end of the lesson, the learner should be able to (i) State the uses of nitrogen	• Discussion on the uses of nitrogen • Drawing the nitrogen cycle • Listing uses of nitrogen	• Chart showing the nitrogen cycle • Chart showing uses of nitrogen	• Comprehensive secondary chemistry students book 3 pages 127-128 • Comprehensive chemistry teachers book 3 pages 65 • Longhorn secondary chemistry book 2	

							pages 193 • Secondary chemistry-KLB students book 3 page 139 • Secondary chemistry form 3 Patel page 95	
	4-5	Nitrogen and its compounds	Preparation and properties of nitrogen (i) oxide	By the end of the lesson, the learner should be able to (i) Explain the preparation of nitrogen (ii) State the properties of nitrogen (I) oxide	• Demonstration on the preparation of nitrogen (I) oxide • Recording observations • Discussion based on observations • Writing related chemical equations • Explaining properties of nitrogen (I) oxide	• Ammonium sulphate • Sodium nitrate • Round-bottomed flask • Water trough • Stand and clamp • Gas jar • Bunsen burner • Red and blue litmus papers	• Comprehensive secondary chemistry students book 3 pages 129-131 • Comprehensive chemistry teachers book 3 pages 65-66 • Longhorn secondary chemistry book 2 pages 195 • Secondary chemistry-KLB students book 3 page 139 • Secondary chemistry form 3 Patel page 96	
9	**1-2**	Nitrogen and its compound	Preparation and properties of nitrogen (II) oxide	By the end of the lesson the learner should be able to (i) State the properties of nitrogen (ii) oxide	• Demonstration on the preparation of nitrogen (II) oxide • Recording observations • Discussion based on observations • Writing chemical equations • Explaining properties of nitrogen (II) oxide	• Concentrated nitric acid • Distilled water • Copper forms • Round-bottomed flask • Thistle funnel • Gas jars • Measuring cylinder • Delivery tube	• Comprehensive secondary chemistry students book 3 pages 131-134 • Comprehensive chemistry teachers book 3 pages 66-67 • Longhorn secondary chemistry book 2 pages 201 • Secondary chemistry-KLB students book 3 page 139 • Secondary chemistry form 3 Patel page 96	
	3	Nitrogen and its	Test and uses of	By the end of the lesson,	• Discussion on the	• Charts showing	• Comprehensive	

		compounds	N_2O and NO	the learner should be able to (i) State the uses of nitrogen (I) oxide and nitrogen (II) oxide	test of N_2O and NO • Listening the uses of N_2O and NO	the difference between N_2O and NO • Chart showing the uses of N_2O and NO	secondary chemistry students book 3 pages 134 • Comprehensive chemistry teachers book 3 pages 66-67, 73 • Longhorn secondary chemistry book 2 pages 200 and 202-203 • Secondary chemistry-KLB students book 3 page 141 • Secondary chemistry form 3 Patel page 99-102	
	4-5	Nitrogen and its compound	Laboratory preparation and properties of Nitrogen (IV) oxide (NO_2) and its uses	By the end of the lesson, the learner should be able to (i) State properties of nitrogen (IV) oxide (ii) Explain its uses	• Demonstration on the preparation of nitrogen (IV) oxide • Recording observations • Discussion based on observation • Writing of chemical equations • Explaining properties and uses of nitrogen (IV) oxide (NO_2)	• Concentrated nitric acid • Copper turnings • Thistle funnel/with tap • Round bottomed flask • Stand with clamp • Gas jars with glass corner • spatulas	• Comprehensive secondary chemistry students book 3 pages 134-136 • Comprehensive chemistry teachers book 3 pages 66-67, 73 • Longhorn secondary chemistry book 2 pages 200 and 204 • Secondary chemistry-KLB students book 3 page 142 • Secondary chemistry form 3 Patel page 100-102	
10	**1-2**	Nitrogen and its compounds	Laboratory preparation and physical properties of	By the end of the lesson, the learner should be able to (i) Describe the	• Demonstration on the preparation of ammonia • Recording	• Ammonia chloride • Calcium hydroxide	• Comprehensive secondary chemistry students book 3 pages 137-138	

			ammonia	laboratory preparation of ammonia and state its physical properties	• observations • Writing of chemical equations • Explaining the physical properties of ammonia	• Quick lime • Round-bottomed flask • Gas jar • Lime water • Wire gauze	• Comprehensive chemistry teachers book 3 pages 69 • Longhorn secondary chemistry book 2 pages 212 • Secondary chemistry-KLB students book 3 page 147 • Secondary chemistry form 3 Patel page 103	
	3-4	Nitrogen and its compounds	Chemical properties of ammonia	By the end of the lesson, the learner should be able to (i) State the chemical properties of ammonia	• Demonstrations on oxidation of ammonia by Copper (IV) oxide • Recording observations • Discussion based on observations • Listing chemical properties of ammonia	• Copper (II) oxide • Ammonia gas • Blue Cobalt (II) chloride • Anhydrous Copper (II) Sulphate • Combustion tube • Stand and clamp • Bunsen burner	• Comprehensive secondary chemistry students book 3 pages 138-142 • Comprehensive chemistry teachers book 3 pages 69-71 • Longhorn secondary chemistry book 2 pages 215 • Secondary chemistry-KLB students book 3 page 150 • Secondary chemistry form 3 Patel page 107-108	
	5	Nitrogen and its compounds	Uses of ammonia	By the end of the lesson, the learner should be (i) Able to state uses of ammonia	• Discussion on uses of ammonia • Listing uses of ammonia	• Chart showing the uses of ammonia	• Comprehensive secondary chemistry students book 3 pages 144-146 • Comprehensive chemistry teachers book 3 pages 73 • Longhorn secondary chemistry book 2	

							pages 226 • Secondary chemistry-KLB students book 3 page 161 • Secondary chemistry form 3 Patel page 113	
11	**1-2**	Nitrogen and its compounds	Properties of ammonia gas and aqueous ammonia	By the end of the lesson, the learner should be able to (i) Explain the differences in chemical reactions of ammonia gas and its aqueous solutions	• Carrying out experiments on reactions of aqueous ammonia with cation • Recording observations • Discussion on reactions of ammonia gas and its aqueous solutions	• Solutions having Ca^{2+}, Fe^{2+},Cu^{2+}, Pb^{2+}, Al^{3+}, Zn^{2+} • Aqueous ammonia • Distilled water • Water bottle	• Comprehensive secondary chemistry students book 3 pages 142-143 • Comprehensive chemistry teachers book 3 pages 69-71 • Longhorn secondary chemistry book 2 pages 214 • Secondary chemistry-KLB students book 3 page 153-159 • Secondary chemistry form 3 Patel page 111	

	3-4	Nitrogen and its compounds	Industrial manufacture of ammonia (harber process)	By the end of the lesson, the learner should be able to (i) Describe the industrial manufacture of ammonia	• Discussion on the industrial manufacture of ammonia • Drawing the flow diagram of the harber process	• Chart showing steps involved in the harber process	• Comprehensive secondary chemistry students book 3 pages 143-144 • Comprehensive chemistry teachers book 3 pages 73 • Longhorn secondary chemistry book 2 pages 225 • Secondary chemistry-KLB students book 3 page 159 • Secondary chemistry form 3 Patel page 111	
	5	Nitrogen and its compounds	Fertilizers	By the end of the lesson, the learner should be able to 9i) calculate the percentage of nitrogen in nitrogen containing fertilizers	• Discussion on fertilizers • Calculations involving the percentage of nitrogen in the fertilizers	• Chart showing different nitrogen containing fertilizers • Samples of ammonium phosphate fertilizers	• Comprehensive secondary chemistry students book 3 pages 145-146 • Comprehensive chemistry teachers book 3 pages 73 • Longhorn secondary chemistry book 2 pages 227 • Secondary chemistry-KLB students book 3 page 161 • Secondary chemistry form 3 Patel page 114	
12	**1-2**	Nitrogen and its compound	Nitric (v) acid	By the end of the lesson, the learner should be able to (i) Describe the preparation	• Demonstration on the preparation of nitric (v) acid • Recording observations	• Concentrated Sulphuric acid • Potassium nitrate • Clamp and	• Comprehensive secondary chemistry students book 3 pages 147-148 • Comprehensive	

				of nitric (v) acid	• Discussion of nitric (V) acid • Writing relevant chemical equations	stand • Round bottomed flask • Conical flask • Spatula • Measuring cylinder	chemistry teachers book 3 pages 71 • Longhorn secondary chemistry book 2 pages 231 • Secondary chemistry-KLB students book 3 page 162 • Secondary chemistry form 3 Patel page 118	
	3-4	Nitrogen and its compound	Physical and chemical properties of Nitric (V) acid	By the end of the lesson, the learner should be able to (i) Describe and explain the reactions of both dilute and Concentrated nitric (V) acid	• Carrying out experiments on reactions of nitric acid • Recording observations • Discussion based on reactions of nitric acid • Writing relevant chemical equations	• Magnesium ribbon • Concentrated and dilute nitric (V) acid • Wooden splint • Copper turnings • Zinc granules • Sulphure powder • Bar iron • Nitrate solution • Iron (Vi) sulphate • Dilute sulphuric acid	• Comprehensive secondary chemistry students book 3 pages 148-150 • Comprehensive chemistry teachers book 3 pages 71-72 • Longhorn secondary chemistry book 2 pages 235 • Secondary chemistry-KLB students book 3 page 165 • Secondary chemistry form 3 Patel page 119	
	5	Nitrogen and its compounds	Industrial manufacture of nitric (V) acid and its uses	By the end of the lesson, the learner should be able to (i) Describe and explain the industrial manufacture of nitric (V) acid (ii) State the uses of nitric	• Explaining the manufacture of nitric (V) acid • Discussion on the uses of nitric (V) acid • Writing relevant chemical equations	• Chart showing the flow diagram for nitric (V) acid manufacture	• Comprehensive secondary chemistry students book 3 pages 148-151 • Comprehensive chemistry teachers book 3 pages 73 • Longhorn secondary chemistry book 2 pages 234	

				(V) acid			• Secondary chemistry- KLB students book 3 page 164 • Secondary chemistry form 3 Patel page 119	
13	**1-2**	Nitrogen and its compound	Effects of heat on nitrates	By the end of the lesson, the learner should be able to (i) Identify the product formed when different nitrates are heated	• Carrying out experiments to investigate the products formed when nitrates are heated • Recording observations • Discussion based on observations • Writing relevant chemical equations	• Solid sodium nitrate • Potassium nitrate • Copper (II) nitrate • Lead (II) nitrate • Silver nitrate • 5 test tubes • Test tube rack • Bunsen burner • Wooden splint	• Comprehensive secondary chemistry students book 3 pages 152 • Comprehensive chemistry teachers book 3 pages 72 • Longhorn secondary chemistry book 2 pages 241 • Secondary chemistry- KLB students book 3 page 171 • Secondary chemistry form 3 Patel page 123	
	3	Nitrogen and its compound	Test for nitrates	By the end of the lesson, the learner should be able to (i) Describe the test for nitrates	• Carrying out experiment to test for nitrates • Discussion based on observations of experiment	• Any nitrate • Iron (II) sulphate solution • Test tubes • Sulphuric acid (concentrated)	• Comprehensive secondary chemistry students book 3 pages 153 • Comprehensive chemistry teachers book 3 pages 72-73 • Longhorn secondary chemistry book 2 pages 243 • Secondary chemistry- KLB students book 3 page 172 • Secondary chemistry form 3 Patel page	

							124	
	4-5	Nitrogen and its compounds	Environmental pollution by nitrogen compounds	By the end of the lesson, the learner should be able to (i) Explain the effects of pollution by nitrogen compound in the environment	• Discussion on environmental pollution by nitrogen compounds • Drawing a flow diagram on environmental pollution by nitrogen compounds	• Samples of nitric (V) acid • Distilled water • Article and photographs from scientific journals and magazines	• Comprehensive secondary chemistry students book 3 pages 154-155 • Comprehensive chemistry teachers book 3 pages 72-73 • Longhorn secondary chemistry book 2 pages 244 • Secondary chemistry-KLB students book 3 page 174 • Secondary chemistry form 3 Patel page 125	
REVISION AND EXAMINATIONS								

CHEMISTRY FORM 3 SCHEMES OF WORK – TERM 3

WEEK	**LESSON**	**TOPIC**	**SUB - TOPIC**	**OBJECTIVES**	**LEARNING/TEACHING ACTIVITIES**	**LEARNING/TEACHING RESOURCES**	**REFERENCES**	**REMARKS**
1	**1-2**	Sulphuric and its compounds	Occurrence and extraction of sulphur	By the end of the lesson, the learner should be able to describe the occurrence and extraction of sulphur	• Identifying the position of sulphur in the periodic table	• The periodic table • A chart showing the diagram of the Frisch process	• Comprehensive secondary chemistry students book 3 pages 160-161 • Comprehensive chemistry teachers book 3 pages 80-82 • Longhorn secondary chemistry book 2 pages 249 • Secondary chemistry-	

							KLB students book 3 page 153-159 • Secondary chemistry form 3 Patel page 128	
	3-4	Sulphur and its compounds	Allotropes of sulphur	By the end of the lesson, the learner should be able to (i) Describe the allotropes of sulphur	• Demonstration of experiment on preparation of rhombic sulphur • Recording observations • Discussion on rhombic sulphur • Drawing rhombic sulphur	• Powdered sulphur • Carbon disulphide • Filter paper • 200cm^2 beaker • Watch glass • Spatula • Hand-lens	• Comprehensive secondary chemistry students book 3 pages 161-162 • Comprehensive chemistry teachers book 3 pages 82-83 • Longhorn secondary chemistry book 2 pages 250 • Secondary chemistry-KLB students book 3 page • Secondary chemistry form 3 Patel page 129	
	5	Sulphur and its compounds	Allotropes of sulphur	By the end of the lesson, the learner should be able to (i) Describe the allotropes of sulphur	• Demonstration on the process of preparation of monochromic sulphur • Recording observations • Discussion on monochromic sulphur • Drawing monochromic sulphur	• Powdered sulphur • Methylbenzene • Large beaker • Small beaker • Spatula • Thermometer • Glass rod • Bunsen burner	• Comprehensive secondary chemistry students book 3 pages 162-165 • Comprehensive chemistry teachers book 3 pages 82-83 • Longhorn secondary chemistry book 2 pages 250 • Secondary chemistry-KLB students book 3 page • Secondary chemistry form 3 Patel page 130-131	

2	**1-2**	Sulphur and its compounds	Physical and its chemical properties of sulphur	By the end of the lesson, the learner should be able to (i) State the physical and chemical properties of sulphur	• Carrying out experiments on reactions of Sulphur • Recording observations • Discussion on properties of sulphur • Writing chemical equations	• Roll of sulphur • Oxygen gas • Distilled water • Red and blue litmus • Iron fillings • Stand and clamp • Test tube • Bunsen burner • Concentrated sulphuric and nitric acids	• Comprehensive secondary chemistry students book 3 pages 166-169 • Comprehensive chemistry teachers book 3 pages 84-85 • Longhorn secondary chemistry book 2 pages 256 • Secondary chemistry-KLB students book 3 page • Secondary chemistry form 3 Patel page 131	
	3	Sulphur and its compounds	Uses of sulphur	By the end of the lesson, the learner should be able to (i) State the uses of sulphur	• Discussion based on the uses of sulphur • Listing uses of sulphur	• Safety matches • Sodium thic sulphate • Sulphuric acid • Vulcanized rubber	• Comprehensive secondary chemistry students book 3 pages 169-171 • Comprehensive chemistry teachers book 3 pages 85 • Longhorn secondary chemistry book 2 pages 258 • Secondary chemistry-KLB students book 3 page • Secondary chemistry form 3 Patel page 132	
	4-5	Sulphur and its compounds	Preparation and properties of Sulphur (iv) oxide	By the end of the lesson, the learner should be able to (i) Describe the preparation and	• Demonstration on the preparation of sulphur (iv) oxide • Recording observations • Discussion on	• Sodium sulphate • Dilute Sulphuric acid • Concentrated sulphuric acid	• Comprehensive secondary chemistry students book 3 pages 171-175 • Comprehensive chemistry teachers	

				properties of sulphur (iv) oxide	properties of sulphur (iv) oxide • Writing chemical equations	• Round bottomed flask • Thistle funnel • Conical flask • Bunsen burner • Flower petals	book 3 pages 86-90 • Longhorn secondary chemistry book 2 pages 259 • Secondary chemistry-KLB students book 3 page • Secondary chemistry form 3 Patel page 132	
3	**1-2**	Sulphur and its compounds	Properties of Sulphur (iv) oxide	By the end of the lesson, the learner should be able to (i) Describe the oxidizing action of sulphur (iv) oxide	• Carrying out experiments to investigate the oxidizing action of sulphur (iv) oxide • Recording observations • Discussion on properties of sulphur (iv) oxide and sulphur (vi) oxide • Writing chemical equations	• Sulphur (iv) oxide gas • Iron (II) sulphide • Dilute hydrochloric acid • Thistle funnel • Stand and clamp • Spatula • Conical flask • Magnesium ribbon • Source of heat	• Comprehensive secondary chemistry students book 3 pages 176-178 • Comprehensive chemistry teachers book 3 pages 86-90 • Longhorn secondary chemistry book 2 pages 262 • Secondary chemistry-KLB students book 3 page • Secondary chemistry form 3 Patel page 124-137	
	3	Sulphur and its compounds	Uses of sulphur (iv) oxide gas	By the end of the lesson, the learner should be able to (i) State the uses of Sulphur (iv) oxide	• Discussion on uses of sulphur (iv) oxide • Listing the uses of sulphur (iv) oxide	• Calcium hydrogen sulphide • Sodium hydrogen sulphite • Wool • sponges	• Comprehensive secondary chemistry students book 3 pages 179-180 • Comprehensive chemistry teachers book 3 pages 90 • Longhorn secondary chemistry book 2 pages 270 • Secondary chemistry-	

							KLB students book 3 page • Secondary chemistry form 3 Patel page 139	
	4-5	Sulphur and its compounds	Test for sulphate and sulphite ions	By the end of the lesson, the learner should be able to (i) Carry out tests to distinguish between sulphites (SO_3^{2-}), and Sulphite (SO_4^{2-}) ions	• Carrying out experiments to test SO_3^{2-} and SO_4^{2-} • Recording observations • Discussion on test for the ions based on observations • Write relevant chemical equations	• Baron chloride • Lead (II) nitrate • Sodium sulphate • Dilute nitric acid • Filter paper soaked in acidified potassium dichloride (VI) • Distilled water • Test tubes • Test tube racks	• Comprehensive secondary chemistry students book 3 pages 178-179 • Comprehensive chemistry teachers book 3 pages 91 • Longhorn secondary chemistry book 2 pages 268 • Secondary chemistry-KLB students book 3 page • Secondary chemistry form 3 Patel page 139	
4	**1-2**	Sulphur and its compounds	Manufacture of sulphuric (iv) acid	By the end of the lesson, the learner should be able to (i) Explain the preparation and manufacture of Sulphuric (iv) acid	• Discussion on the manufacture of Sulphuric (vi) acid • Drawing the flow diagram of the contact process • Writing relevant chemical equations	• Chart showing the flow diagram of the contact process of Sulphuric (Vi) acid	• Comprehensive secondary chemistry students book 3 pages 180-182 • Comprehensive chemistry teachers book 3 pages 92 • Longhorn secondary chemistry book 2 pages 274 • Secondary chemistry-KLB students book 3 page • Secondary chemistry form 3 Patel page 140	

	3	Sulphur and its compounds	Uses of Sulphric (VI) acid	By the end of the lesson, the learner should be able to (i) State the uses of sulphuric (VI) acid	• Discussion on uses of Sulphuric (VI) acid • Listing uses of Sulphuric (VI) acid •	• Chart showing uses of Sulphuric (VI) acid	• Comprehensive secondary chemistry students book 3 pages 182 • Comprehensive chemistry teachers book 3 pages 92 • Longhorn secondary chemistry book 2 pages 288 • Secondary chemistry-KLB students book 3 page • Secondary chemistry form 3 Patel page 142	
	4-5	Sulphur and its compounds	Properties of concentrated Sulphuric (VI) acid	By the end of the lesson, the learner should be able to (i) Describe the reactions of dilute and concentrated Sulphuric (VI) acid	• Demonstration on the reactions of concentrated Sulphuric (VI) acid • Recording observations • Discussion on reactions of concentrated Sulphuric (VI) acid • Writing relevant chemical equations	• Concentrated and dilute sulphuric acids • Copper turnings • Dichromate (VI) carbon • Lime water • Sulphur • Iron fillings • Sodium carbonate • Test tubes • Test tube racks	• Comprehensive secondary chemistry students book 3 pages 183-186 • Comprehensive chemistry teachers book 3 pages 92-94 • Longhorn secondary chemistry book 2 pages 279 • Secondary chemistry-KLB students book 3 page • Secondary chemistry form 3 Patel page 145-146	
5	**1-2**	Sulphur and its compounds	Properties of dilute sulphuric acid	By the end of the lesson, the learner should be able to (i) Describe reactions of dilute	• Carrying out experiments on reactions of dilute sulphuric (VI) acid • Recording observations	• Iron filings • Dilute sulphuric acid • Sodium carbonate • 2m sodium	• Comprehensive secondary chemistry students book 3 pages 186-188 • Comprehensive chemistry teachers	

				sulphuric (VI) acid (ii) Distinguish between the reactions of dilute and concentrated sulphuric (VI) acid	• Discussion on dilute sulphuric acid • Writing relevant chemical equations • Comparing reactions of dilute acid and concentrated acids	hydroxide • 2M potassium hydroxide • Magnesium oxide • Test tube • Test tube racks	book 3 pages 82-83 • Longhorn secondary chemistry book 2 pages 285 • Secondary chemistry-KLB students book 3 page • Secondary chemistry form 3 Patel page 145-146	
	3-4	Sulphur and its compounds	Hydrogen sulphide	By the end of the lesson, the learner should be able to (i) Describe the preparation of hydrogen sulphide (ii) State the physical properties of hydrogen Sulphide	• Demonstration on preparation of hydrogen Sulphide • Discussion on physical properties of hydrogen sulphide • Writing relevant chemical equations	• Charts showing physical properties of Sulphide • Iron (II) Sulphide • Dilute hydrochloric acid • Round-bottomed flask • Filter paper • Conical flask • Thistle funnel	• Comprehensive secondary chemistry students book 3 pages 189-191 • Comprehensive chemistry teachers book 3 pages 95 • Longhorn secondary chemistry book 2 pages 289 • Secondary chemistry-KLB students book 3 page • Secondary chemistry form 3 Patel page 147-149	
	5	Sulphur and its compounds	Chemical properties of hydrogen Sulphide	By the end of the lesson, the learner should be able to (i) Explain the chemical properties of hydrogen sulphide	• Explaining the chemical properties of hydrogen sulphide • Writing relevant chemical equations	• Chart showing chemical properties of hydrogen Sulphide	• Comprehensive secondary chemistry students book 3 pages 191-192 • Comprehensive chemistry teachers book 3 pages 95 • Longhorn secondary chemistry book 2 pages 291 • Secondary chemistry-	

							KLB students book 3 page • Secondary chemistry form 3 Patel page 148	
6	**1**	Sulphur and its compounds	Pollution by Sulphur containing compounds	By the end of the lesson, the learner should be able to (i) Explain the environments pollution caused by sulphur containing compounds	• Discussion on pollution caused by sulphur containing compounds • Writing relevant chemical equations	• Chart showing the list of sulphur pollutants • Calcium carbonate • Dilute sulphuric acids	• Comprehensive secondary chemistry students book 3 pages 192 • Comprehensive chemistry teachers book 3 pages 92-96 • Longhorn secondary chemistry book 2 pages 293 • Secondary chemistry-KLB students book 3 page • Secondary chemistry form 3 Patel page 149	
	2-3	Chlorine and its compound	Preparation of chlorine gas	By the end of the lesson, the learner should be able to (i) Describe and explain the laboratory preparation of chlorine gas	• Demonstration on the preparation of chlorine gas • Recording observations • Discussion on preparation of Chlorine • Writing relevant chemical equations	• Manganese (IV) Oxide • Concentrated sulphuric acid • Concentrated hydrochloric acid • Bunsen burner • Delivery tubes • Gas jar • Round bottomed flask	• Comprehensive secondary chemistry students book 3 pages 109-201 • Comprehensive chemistry teachers book 3 pages 106-109 • Longhorn secondary chemistry book 2 pages 298 • Secondary chemistry-KLB students book 3 page • Secondary chemistry form 3 Patel page	

							133	
	4-5	Chlorine and its compounds	Reaction of chlorine with • Hydrogen • Metals • Non-metals	By the end of the lesson, the learner should be able to (i) State and explain the preparations of chlorine	• Demonstration on reactions of chlorine with hydrogen, metals and non-metals • Recording observations • Discussion on reactions of chlorine • Writing relevant chemical equations	• Zinc granules • Dilute hydrochloric acid • Aluminum metal • Magnesium metal • Iron • Phosphorous • Source of chlorine	• Comprehensive secondary chemistry students book 3 pages 201-204 • Comprehensive chemistry teachers book 3 pages 106-109 • Longhorn secondary chemistry book 2 pages 301 • Secondary chemistry-KLB students book 3 page • Secondary chemistry form 3 Patel page 154	
7	**1**	Chlorine and its compounds	Reaction of chlorine with • Sulphates • hydrocarbons	By the end of the lesson, the learner should be able to (i) state and explain the properties of chlorine	• demonstrate on the reactions of chlorine with sulphides and hydrocarbons • recording observations • discussion on reactions of chlorine • writing relevant chemical equations	• concentrated ammonia solutions containing sulphates • boiling tube • stand and clamp • delivery tube • spatula	• Comprehensive secondary chemistry students book 3 pages 204-207 • Comprehensive chemistry teachers book 3 pages 109-110 • Longhorn secondary chemistry book 2 pages 301 • Secondary chemistry-KLB students book 3 page • Secondary chemistry form 3 Patel page 154	
	2-3	Chlorine and its compounds	Reaction of chlorine with	By the end of the lesson, the learner should be able	• Demonstrations on the reactions of	• Sodium hydroxide	• Comprehensive secondary chemistry	

			water, alkalis, bromine, chlorine and iodine	to (i) State and explain the properties of chlorine	chlorine with water, alkalis and chlorine • Recording observations • Discussion on reactions of chlorine • Writing relevant chemical equations	• Potassium bromide • Potassium iodine • Distilled water • Source of chlorine • Measuring cylinder • Beaker • Wooden splint	students book 3 pages 207-212 • Comprehensive chemistry teachers book 3 pages 111-113 • Longhorn secondary chemistry book 2 pages 310 • Secondary chemistry-KLB students book 3 page • Secondary chemistry form 3 Patel page 154-158	
	4-5	Chlorine and its compounds	Uses of chlorine	By the end of the lesson, the learner should be able to (i) State the uses of chlorine	• Discussion on uses of chlorine • Listing the uses of chlorine	• Chart showing the uses of chlorine • PVC pipes • Chloroform • Hydrogen chloride	• Comprehensive secondary chemistry students book 3 pages 213-214 • Comprehensive chemistry teachers book 3 pages 116-117 • Longhorn secondary chemistry book 2 pages 320 • Secondary chemistry-KLB students book 3 page • Secondary chemistry form 3 Patel page 160	
8	**1-2**	Chlorine and its compounds	Preparation of hydrogen chlorine gas	By the end of the lesson, the learner should be able to (i) Describe and explain the laboratory	• Demonstration on the preparation of hydrogen chloride gas • Recoding observations	• Concentrated Sulphuric (IV) acid • Sodium chloride • Round-	• Comprehensive secondary chemistry students book 3 pages 216-217 • Comprehensive chemistry teachers	

				preparation of hydrogen chloride gas	• Discussion on the preparation of hydrogen chloride gas • Writing relevant chemical equations	bottomed flask • Source of heat • Gas jar with cover • Thistle funnel • Delivery tubes • Stand and clamp	book 3 pages 114 • Longhorn secondary chemistry book 2 pages 323 • Secondary chemistry-KLB students book 3 page • Secondary chemistry form 3 Patel page 161	
	3	Chlorine and its compounds	Physical properties of hydrogen chloride gas	By the end of the lesson, the learner should be able to (i) Explain the physical properties of hydrogen chloride gas	• Explaining the physical properties of hydrogen chloride gas	• Chart showing physical properties of hydrogen chloride gas	• Comprehensive secondary chemistry students book 3 pages 217 • Comprehensive chemistry teachers book 3 pages 114-116 • Longhorn secondary chemistry book 2 pages 325 • Secondary chemistry-KLB students book 3 page • Secondary chemistry form 3 Patel page 162	
	4-5	Chlorine and its compounds	Physical properties of hydrogen Chloride gas	By the end of the lesson, the learner should be able to (i) Explain the physical properties of hydrogen chloride gas	• Demonstration on the reactions of hydrogen chloride with ammonia gas, ammonia and silver nitrate • Recording observations • Discussion on reactions of hydrogen chloride	• Hydrogen chloride gas • Dilute nitric acid • Silver nitrate • Beaker • Gas jar with covers • Ammonia • 2 gas jars	• Comprehensive secondary chemistry students book 3 pages 217-218 • Comprehensive chemistry teachers book 3 pages 114-115 • Longhorn secondary chemistry book 2	

					• Writing relevant chemical equations		pages 325 • Secondary chemistry-KLB students book 3 page • Secondary chemistry form 3 Patel page 162-163	
9	**1-2**	Chlorine and its compounds	Effects of solvent into properties of hydrogen chloride gas	By the end of the lesson, the learner should be able to explain the effects of a solvent on the properties of hydrogen chloride gas	• Demonstration on the properties of hydrogen chloride • Recording observations • Discussion on properties of hydrogen chloride gas • Writing relevant chemical equations	• Hydrogen chloride gas • Distilled water • Methylbenzene • Zinc granules • Magnesium metal • Iron metal • Sodium hydroxide • Red and blue litmus paper	• Comprehensive secondary chemistry students book 3 pages 219 • Comprehensive chemistry teachers book 3 pages 115-116 • Longhorn secondary chemistry book 2 pages 328 • Secondary chemistry-KLB students book 3 page • Secondary chemistry form 3 Patel page 165-166	
	3	Chlorine and its compounds	Uses of hydrogen chloride gas	By the end of the lesson, the learner should be able to (i) State uses of hydrogen chloride gas	• Discussion on uses of hydrogen chloride gas • Listing uses of hydrogen chloride gas	• Chart showing the uses of hydrogen chloride gas • Sodium chloride • Hydrochloric acid	• Comprehensive secondary chemistry students book 3 pages 220 • Comprehensive chemistry teachers book 3 pages 115-116 • Longhorn secondary chemistry book 2 pages 331 • Secondary chemistry-KLB students book 3	

							page • Secondary chemistry form 3 Patel page 166-167	
	4-5	Chlorine and its compounds	Industrial manufacture of hydrochloric acid and its uses	By the end of the lesson, the learner should be able to (i) Describe the industrial manufacture of hydrochloric acid (ii) State the uses of hydrochloric acid	• Drawing a flow chart to explain the manufacture of hydrochloric acid • Writing relevant chemical equation • Listing the uses of hydrochloric acid	• Chart showing the steps involved in manufacture of hydrochloric acid • Hydrochloric acid	• Comprehensive secondary chemistry students book 3 pages 220-221 • Comprehensive chemistry teachers book 3 pages 116 • Longhorn secondary chemistry book 2 pages 332 • Secondary chemistry-KLB students book 3 page • Secondary chemistry form 3 Patel page 168	
10	**1-2**	Chlorine and its compounds	Environmental pollution by chlorine containing compounds	By the end of the lesson, the learner should be able to (i) Explain the environmental pollution caused by chlorine and chlorine containing compounds	• Explaining the effects of the accumulation of CFCs in the atmosphere	• Samples of aerosols such as indectricides and perfumes • Articles and photographs from scientific journals	• Comprehensive secondary chemistry students book 3 pages 220-221 • Comprehensive chemistry teachers book 3 pages 116 • Longhorn secondary chemistry book 2 pages 332 • Secondary chemistry-KLB students book 3 page • Secondary chemistry form 3 Patel page 168	
	2-3	Chlorine and its	Chlorine and its	By the end of the lesson,	• Supervised practice	• Sample test	• Comprehensive	

		compounds	compounds Revision	the learner should be able to (i) Answer all revision questions given	• Discussing corrections to questions	papers • Revision exercise	secondary chemistry students book 3 pages 221-221 • Comprehensive chemistry teachers book 3 pages 116-117 • Longhorn secondary chemistry book 2 pages 339 • Secondary chemistry-KLB students book 3 page • Secondary chemistry form 3 Patel page 169	
REVISION AND EXAMINATIONS								
CHEMISTRY FORM 4 SCHEMES OF WORK – TERM 1								
WEEK	**LESSON**	**TOPIC**	**SUB - TOPIC**	**OBJECTIVES**	**LEARNING/TEACHING ACTIVITIES**	**LEARNING/TEACHING RESOURCES**	**REFERENCES**	**REMARKS**
1	**1-2**	Acids, bases and salts	Acid and bases	By the end of the lesson, the learners should be able to (i) Define acids and bases	• Defining acids and bases • Writing relevant chemical equations	• Acids- HCL, HNO_3 and H_2SO_4 • Bases – NaOH, Ca(OH) and KOH	• Comprehensive secondary chemistry students book 4 pages 1-3 • Comprehensive chemistry teachers book 4 pages 1-4 • Secondary chemistry-KLB students book 3 page • Foundation chemistry students' book 4 page 3	

	3	Acids, base and salts	Strengths of acids and bases	By the end of the lesson, the learner should be able to (i) Explain the differences between aqueous solutions of weak and strong acids based on the degree to which these dissociate into ions	• Demonstration on the reactions of HCL (aq) and CH_2COOH (aq) with marble chips • Recording of observations • Discussion on strengths of acid • Writing relevant chemical equation	• 2M HCL • 2m CH_3COOH marble chips • Test tube holder • Forceps • Test tube • Chart showing strengths of acids	• Comprehensive secondary chemistry students book 4 pages4-5 • Comprehensive chemistry teachers book 4 pages 3-4 • Secondary chemistry-KLB students book 3 page 1 • Foundation chemistry students' book 4 page 3	
	4-5	Acids, bases and salts	Strengths of acids and bases	By the end of the lesson, the learner should be able to (i) Explain the difference between a gaseous solutions of weak and strong acids and bases based on the degree with which they dissociate into ions	• Demonstration of experiment comparing electrical conductivity of dilute acid and bases • Recording observations • Discussion on strengths of acids and bases • Write relevant chemical equations	• 2M HCL • 2m CH_3COOH • 2m $NH_3(aq)$ • Carbon electrodes • 250 cm^3 beaker • 1 torch, 2 dry cells, connecting wires, • Measuring cylinders	• Comprehensive secondary chemistry students book 4 pages5-6 • Comprehensive chemistry teachers book 4 pages 3-4 • Secondary chemistry-KLB students book 3 page 1 • Foundation chemistry students' book 4 page 3	
2	**1**	Acids, bases and salts	Strength of acids and bases	By the end of the lesson, the learner should be able to (i) Explain the difference between aqueous solutions of weak and strong bases based on degree with	• Discussion on strengths of bases • Writing relevant chemical equation	• NAOH • $NH_3(Aq)$ • $CA(OH)_2$ • KOH • Chart showing strengths of bases	• Comprehensive secondary chemistry students book 4 pages6-6 • Comprehensive chemistry teachers book 4 pages 3-4 • Secondary chemistry-KLB students book 3 page 1 • Foundation	

				which they dissociate into ion			chemistry students' book 4 page 3	
	2	Acids, bases and salts	Strengths of acids and bases	By the end of the lesson, the learner should be able to (i) Explain the effect on H^+ (aq) and OH^- on indicators	• Carrying out experiments comparing acidity and bacity of acids and bases of different concentrations • Recording observations • Discussion of strength of acid and bases • Writing relevant equations	• HCL, CH_2COOH, NaOH, NH_3(aq) • Universal indicator • PH chart • Test tube racks and test tubes • Droppers • Beakers	• Comprehensive secondary chemistry students book 4 pages7-10 • Comprehensive chemistry teachers book 4 pages 3-4 • Secondary chemistry-KLB students book 3 page 1 • Foundation chemistry students' book 4 page 3	
	3	Acids, bases and salts	Characteristics of amphoteric, oxides and hydroxides	By the end of the lesson, the learner should be able to (i) Write formulae and ionic equations for specified acids base and precipitation reaction	• Demonstration of experiments to investigate amphoteric metal hydroxides • Recording of observations • Discussion on characteristic of amphoteric oxides and hydroxides	• Zinc $PbNo_3$ • $AlCl_3$, $Cacl_2$ • $MgSO_4$ $2mNH_{3(aq)}$ • Test tube rack • Distilled water • Wash bottle • Test tubes • 2 droppers • 2 small beakers	• Comprehensive secondary chemistry students book 4 pages11-12 • Comprehensive chemistry teachers book 4 pages 4-5 • Secondary chemistry-KLB students book 3 page 12 • Foundation chemistry students' book 4 page 9	
	4-5	Acids, bases and salts	Characteristics of amphoteric oxides and hydroxides	By the end of the lesson, the learner should be able to (i) Write formulae and ionic equations for specified acid-base and precipitation	• Demonstration of experiments to investigate which metal oxides are amphoteric • Recording observation • Discussion on characteristic of amphoteric oxides	• MgO, Al_2O_3, Fe_2O_3, PbO, CuO, 2m HNO_3, 2m HNO_3, 2m NaoH, 2m NH_3(aq) • Test tubes • Test tube racks • Small beakers • Heat source	• Comprehensive secondary chemistry students book 4 pages12-14 • Comprehensive chemistry teachers book 4 pages 4-5 • Secondary chemistry-KLB students book 3	

				reactions	and hydroxides		page 12 • Foundation chemistry students' book 4 page 9	
3	**1**	Acids, bases and salts	Effects of solvent	By the end of the lesson, the learner should be able to (i) Explain the effect of solvent in acid-base characters	• Demonstration of experiment to investigate the reaction of dry and aqueous hydrogen chloride gas with magnesium, litmus paper and marble chips • Recording observations • Writing of relevant chemical equations	• Magnesium ribbon • Marble chips • Distilled water • Dry blue litmus paper • 3 dry gas jar forceps, wash bottles	• Comprehensive secondary chemistry students book 4 pages14-15 • Comprehensive chemistry teachers book 4 pages 5-6 • Secondary chemistry-KLB students book 3 page 9 • Foundation chemistry students' book 4 page 13	
	2	Acids, bases and salts	Effects of solvent	By the end of the lesson, the learner should be able to (i) Explain the effect of solvents in acid-base character	• Demonstration of experiments to investigate properties of methylbenzene • Recording observations • Discussions of effects of solvents • Writing of relevant chemical equations	• Magnesium ribbon • Marble chips • Blue and red litmus papers • Solution of HCL (aq) in methylbenzene • Four 100cm^3 beakers • forceps	• Comprehensive secondary chemistry students book 4 pages15-16 • Comprehensive chemistry teachers book 4 pages 5-6 • Secondary chemistry-KLB students book 3 page 9 • Foundation chemistry students' book 4 page 13	
	3	Acid, bases and salts	salts	By the end of the lesson, the learner should be able to (i) Define salts (ii) Test for the presence of specified cations and	• Defining salts • Discussion on salts as ionic compounds • Writing of relevant chemical equations	• NAcl, $Mgcl_2$, $CaCo_3$ & $CaSO_4$ solution containing cations • Test tubes, test tube racks, holders,	• Comprehensive secondary chemistry students book 4 pages16-17 • Comprehensive chemistry teachers	

				anions		distilled water	book 4 pages 6-7 • Secondary chemistry-KLB students book 3 page 14 • Foundation chemistry students' book 4 page 14	
	4-5	Acids, bases and salts	Precipitation reaction	By the end of the lesson, the learner should be able to (i) Identify precipitates and complex ions produced by specified cations-anion reactions	• Demonstration of experiments on precipitation reaction involving acids • Recording observations • Discussions • Writing relevant chemical equations	• $H_2SO_{4\,(aq)}$ • Ag, NO_3(aq), $Ba(NO_3)$ • Test tube • Test tube rack • Spatula • 100cm^3 beakers	• Comprehensive secondary chemistry students book 4 pages17-18 • Comprehensive chemistry teachers book 4 pages 12-13 • Secondary chemistry-KLB students book 3 page 14 • Foundation chemistry students' book 4 page 14	
4	**1**	Acids, bases and salts	Precipitation reactions	By the end of the lesson, the learner should be able to (i) Identify precipitation and complex ions produced by specified cation-anion reactions	• Demonstration of experiments on precipitation reactions involving salts • Recording observations • Writing relevant chemical equations	• Pb $(NO_3)_2$, Na_2SO_4, $BaCl_2$ • Test tubes • Test tube rack • spatula	• Comprehensive secondary chemistry students book 4 pages 18 • Comprehensive chemistry teachers book 4 pages 7-8 • Secondary chemistry-KLB students book 3 page 14 • Foundation chemistry students' book 4 page 14	
	2	Acids, bases and salts	Reactions of cation in aqueous solutions	By the end of the lesson, the learner should be able to (i) Identify	• Carrying out experiments to show the reaction of actions with	• Aqueous solutions containing Ca^{2+}, Mg^{2+}, Pb^{2+}, Fe^{2+},	• Comprehensive secondary chemistry students book 4 pages 19	

				precipitates and complex ions produced by cation-anion reactions	aqueous sodium hydroxide • Recording observations • Diffusion based on observations • Writing relevant chemical equation	$Fe^{3+,}$ $Ba^{2+,}$ $2n^{2+}$, Al^{3+} and Cu^{2+}, ions • Test tubes and test tube racks, • Spatula • Beaker • 2m NaOH	• Comprehensive chemistry teachers book 4 pages 7-8 • Secondary chemistry-KLB students book 3 page 18-19 • Foundation chemistry students' book 4 page 17	
	3	Acids, bases and salts	reactions of cations in aqueous solutions	By the end of the lessons, the learner should be able to (i) Identify precipitates and complex ions produced by cation-anion reactions	• Carrying out experiments to show the reaction of cations with aqueous ammonia • Recording observations • Discussion based on observation • Writing relevant chemical equations	• Aqueous solutions containing C a^{2+},$Mg^{2+}Fe^{2+}$,Fe^{3+}, Ba^{2+},$Zn^{2+,}$ Al^{3+}, Cu^{2+} ions • 2m NH_3(aq) • Test tubes • Small beakers • Spatula • Dropper	• Comprehensive secondary chemistry students book 4 pages 20 • Comprehensive chemistry teachers book 4 pages 7-8 • Secondary chemistry-KLB students book 3 page 18-19 • Foundation chemistry students' book 4 page 17	
	4-5	Acids, bases and salts	Reaction of cation in aqueous solutions	By the end of the lesson, the learner should be able to (i) Identify precipitates and complex ions produced by cation-anion reactions	• Carrying out experiments to show reactions of actions	• Aqueous solutions containing C a^{2+},$Mg^{2+}Fe^{2+}$,Fe^{3+}, Ba^{2+},$Zn^{2+,}$ Al^{3+}, Cu^{2+} ions • Na_2CO_3 (aq) • HCL(aq), H_2SO_4 • Test tubes • beakers	• Comprehensive secondary chemistry students book 4 pages 21-22 • Comprehensive chemistry teachers book 4 pages 7-8 • Secondary chemistry-KLB students book 3 page 18-19 • Foundation chemistry students' book 4 page 17	
5	**1**	Acids, bases and salts	Solubility, solubility curves	By the end of the lesson, the learner should be able	• Carrying out experiments to	• NaCl, $KcLO_{3,}$ KNO^3, $CaSO_4$,	• Comprehensive secondary chemistry	

				to (i) Explain the use of solubilites curves in salt extraction	show the relationship between solubility of various salts and temperatures • Recording observations • Drawing solubility curves	distilled water • Measuring cylinder • 100 cm^3 beakers • Glass rod, • Thermometer • Test tube • Source of heat	students book 4 pages 24-26 • Comprehensive chemistry teachers book 4 pages 9 • Secondary chemistry-KLB students book 3 page 20-23 • Foundation chemistry students' book 4 page 20	
	2	Acids, bases and salts	Extraction of salts	By the end of the lesson, the learner should be able to (i) State various methods of salt extraction	• Discussion on various methods of extraction of salts	• Chart on the process of extraction • Photographs from brochure of salt extraction plants	• Comprehensive secondary chemistry students book 4 pages 26-29 • Comprehensive chemistry teachers book 4 pages 10 • Secondary chemistry-KLB students book 3 page 24 • Foundation chemistry students' book 4 page	
	3	Acid, bases and salts	Water harchess	By the end of the lesson, the learner should be able to (i) State the types of causes of hardness of water	• Demonstration of experiments to investigate hardness of water • Recording observations • Discussion based on observations • Writing relevant chemical reaction equation	• 2Ml, $CaCl_2$, $Ca(HCO_3)_2$, $CaSO_4$, $MgSO_3$ • Bar soap • Distilled water • Tap water • Sea water • Test tubes • Dropper • Beaker • spatula	• Comprehensive secondary chemistry students book 4 pages 30-31 • Comprehensive chemistry teachers book 4 pages 10 • Secondary chemistry-KLB students book 3 page 25-26 • Foundation chemistry students' book 4 page 24	

	4-5	Acids, bases and salts	Water hardness	By the end of the lesson, the learner should be able to (i) State the effects of boiling on hardness of water (ii) Explain the methods of removal of water hardness	• Carrying out experiments to show the effects of boiling on hardness of water • Recoding observation and other methods of removing hardness of water • Writing relevant chemical equation	• Solution of $Ca(HCO_3)_2$ • $Mg(HCO_3)_2$, $CaSO_4$, MGS O_4,$Ca(OH)_2NH_3$(aq) • Distilled water • Tap water • Sea water • Soap solution • Beaker's • Test tubes & droppers	• Comprehensive secondary chemistry students book 4 pages 31-35 • Comprehensive chemistry teachers book 4 pages 10 • Secondary chemistry-KLB students book 3 page 25-26 • Foundation chemistry students' book 4 page 24	
6	**1**	Energy changes in reactions	Introduction exothermic reactions	By the end of the lesson, the learner should be able to (i) Define endothermic reactions using H rotation	• Demonstration of experiments to investigate exothermic reactions • Recording observations • Discussion based on observations	• KNO_3, NaCL • Dilute water • Spatula • Test tubes • Test tube rack • Concentrated H_2SO_4 • Distilled water • Test tubes • Test tube rack	• Comprehensive secondary chemistry students book 4 pages 41-43 • Comprehensive chemistry teachers book 4 pages 23-24 • Secondary chemistry-KLB students book 3 page 32-35 • Foundation chemistry students' book 4 page 40	
	2	Energy changes in reactions	Endothermic reactions	By the end of the lesson, the learner should be able to (i) Define endothermic reactions using H rotation	• Carrying out experiments to investigate endothermic reactions • Recording observations • Discussion based on observations	• KNO_3, Nacl • Distilled water • Spatula • Test tube • Test tube rack	• Comprehensive secondary chemistry students book 4 pages 44-45 • Comprehensive chemistry teachers book 4 pages 23-24 • Secondary chemistry-KLB students book 3	

							page 32-35 • Foundation chemistry students' book 4 page 40	
	3	Energy changes in reactions	Energy level diagrams	By the end of the lesson, the learner should be able to (i) Draw energy level diagrams for exothermic reactions	• Discussions energy level diagram • Drawing the energy level diagrams	• Graph papers pencil, rules • Charts on energy level diagram for exothermic reactions	• Comprehensive secondary chemistry students book 4 pages 44 • Comprehensive chemistry teachers book 4 pages 23,30 • Secondary chemistry-KLB students book 3 page 33-34 • Foundation chemistry students' book 4 page 41	
	4-5	Energy changes in reactions	Energy level diagrams	By the end of the lesson, the learner should be able to (i) Draw energy level diagrams for endothermic reactions	• Discussion on energy level diagrams for endothermic reactions • Drawing the energy level diagrams for endothermic reactions	• Graph, papers, pencils, rulers • Charts on energy level diagrams for endothermic reactions	• Comprehensive secondary chemistry students book 4 pages 45 • Comprehensive chemistry teachers book 4 pages 23,30 • Secondary chemistry-KLB students book 3 page 33-34 • Foundation chemistry students' book 4 page 41	
7	**1-2**	Energy changes in reactions	Latent-heat	By the end of the lesson, the learner should be able to (i) Explain fusion and vaporization as evidence of inter-	• Demonstration of experiments to investigate latent heat of fusion and vaporization • Recording observations • Discussion on	• Ice • Beakers • Graph paper • Source of heat • Thermometers • Distilled water	• Comprehensive secondary chemistry students book 4 pages 45-46 • Comprehensive chemistry teachers	

				particle forces	latent-heat of vaporization		book 4 pages 25 • Secondary chemistry-KLB students book 3 page 37 • Foundation chemistry students' book 4 page 42	
	3	Energy changes in reactions	Comparison between heat and fusion and heat of vaporization	By the end of the lesson, the learner should be able to (i) Explain that energy changes in chemical reactions are due to bond formation and bond breakage	• Discussion in heat of fusion and heat of vaporization	• Chart showing comparison between latent heat of fusion and of vaporization	• Comprehensive secondary chemistry students book 4 pages 46 • Comprehensive chemistry teachers book 4 pages 25 • Secondary chemistry-KLB students book 3 page 37-38 • Foundation chemistry students' book 4 page 44	
	4-5	Energy changes in reaction	Enthalpy	By the end of the lesson, the learner should be able to (i) Define and explain the various types of heat changes	• Discussion on enthalpy • Drawing of energy level diagrams	• Chart on energy level diagram	• Comprehensive secondary chemistry students book 4 pages 47-50 • Comprehensive chemistry teachers book 4 pages 25-27 • Secondary chemistry-KLB students book 3 page 40 • Foundation chemistry students' book 4 page 41	
8	**1-2**	Energy changes in reaction	Quantitative determination of enthalpies	By the end of the lesson, the learner should be able to (i) Carry out	• Demonstration on experiment to investigate enthalpy change of	• Distilled water • NH_4NO_3 • Thermometer (-10^0c-110^0c)	• Comprehensive secondary chemistry students book 4 pages 50-51	

				experiments to determine enthalpy change of reactions	• ammonium nitrate solution • Recording of observations • Calculating enthalpy of solutions • Drawing the one lever diagram	• Fixed cork • 250 cm^3 plastic bottle • 100cm^3 • Measuring cylinder • Weighing balance	• Comprehensive chemistry teachers book 4 pages 25-28 • Secondary chemistry-KLB students book 3 page 40 • Foundation chemistry students' book 4 page 45	
	3	Energy changes in reaction	Quantitative determination of enthalpies	By the end of the lesson, the learner should be able to (i) Carry out experiments to determine enthalpy changes in reactions	• Carrying out experiments to show enthalpy change of sodium hydroxide solution • Recording observations • Calculating enthalpy of solutions • Drawing the energy level diagram	• NAOH • Distilled water • Thermometer • -10^0c-110^0C • Plastic bottle • 50cm^3 measuring cylinder • Weighing balance	• Comprehensive secondary chemistry students book 4 pages 50-51 • Comprehensive chemistry teachers book 4 pages 25-28 • Secondary chemistry-KLB students book 3 page 40 • Foundation chemistry students' book 4 page 45	
	4-5	Energy changes in reaction	Quantitative determination of enthalpies	By the end of the lesson, the learner should be able to (i) Carry out experiments to determine enthalpy change of reactions	• Carrying out experiments to investigate enthalpy change of the dissolution of concentrated H_2SO_4 • Recording observations calculating enthalpy change involved • drawing of energy level diagram	• concentrated sulphuric acid • distilled water 250cm^3 • plastic bottle • test tube • 5cm^3 and 50 cm^3 • Measuring cylinders • Thermometer (-10^0c-110^0c)	• Comprehensive secondary chemistry students book 4 pages 50-51 • Comprehensive chemistry teachers book 4 pages 25-28 • Secondary chemistry-KLB students book 3 page 40 • Foundation chemistry students' book 4 page 45	
9	**1-2**	Energy changes in reaction	Quantitative determination of	By the end of the lesson, the learner should be able	• Demonstration of experiments to	• Methanol • Distilled water	• Comprehensive secondary chemistry	

			enthalpies	to (i) Determine enthalpies of combustion of methanol	investigate combustion of methanol • Recording observations • Calculating enthalpies of combustion • Drawing of energy level diagram	• Methanol burner with a lid • Thermometer • Calorimeter • Burette • Standard clamp	students book 4 pages 53-55 • Comprehensive chemistry teachers book 4 pages 27-28 • Secondary chemistry-KLB students book 3 page 40 • Foundation chemistry students' book 4 page 45	
	3	Energy changes in reactions	Quantitative determination of enthalpies	By the end of the lesson, the learner should be able to (i) Determine the enthalpy of displacement in the reaction between zinc metal and copper (II) sulphate solution	• Carrying out experiments to show displacement of CU^{2+} by Zinc metal • Calculating enthalpy of displacement of energy level diagrams	• Zinc powder 0.2m Copper (II) sulphate solution • $100cm^3$ plastic beaker • Thermometer • Plastic beaker • Measuring cylinder • Weighing balance	• Comprehensive secondary chemistry students book 4 pages 56-58 • Comprehensive chemistry teachers book 4 pages 28 • Secondary chemistry-KLB students book 3 page 40 • Foundation chemistry students' book 4 page 45	
	4-5	Energy changes in reaction	Thermo chemical equations	By the end of the lesson, the learner should be able to (i) Write correct simple thermo chemical equations	• Discussions on simple thermo chemical equations • Writing thermo chemical equations	• Charts showing simple thermo chemical equations	• Comprehensive secondary chemistry students book 4 pages 62-63 • Comprehensive chemistry teachers book 4 pages 30 • Secondary chemistry-KLB students book 3 page 41-42 • Foundation chemistry students' book 4 page 45	

10	**1**	Energy changes in reaction	Enthalpy of neutralization	By the end of the lesson, the learner should be able to (i) Determine the enthalpy of neutralization of sodium hydroxide and ethanoic acid	• Carrying out experiments to investigate neutralizations • Recording observations • Drawing graphs • Calculating heat of neutralization	• Thermometer • Test tubes • Test tube rack • NaOH, HCL	• Comprehensive secondary chemistry students book 4 pages 59-62 • Comprehensive chemistry teachers book 4 pages 29-30 • Secondary chemistry-KLB students book 3 page 51 • Foundation chemistry students' book 4 page 45	
	2-3	Energy changes in reactions	Hess' law and related calculations Relationship between heat solution, hydration and latine energy	By the end of the lesson, the learner should be able to (i) State Hess' law and carry out related calculations	• Discussion on Hess' law • Drawing of energy level diagrams • Calculation sums on Hess' law • Discussion on relationship between heat of solutions, hydration and lattice energy	• Chart showing energy and diagram • Graph papers	• Comprehensive secondary chemistry students book 4 pages 64-69 • Comprehensive chemistry teachers book 4 pages 30-31 • Secondary chemistry-KLB students book 3 page 56-64 • Foundation chemistry students' book 4 page 73	
	4-5	Energy changes in reaction	Common fields	By the end of the lesson, the learner should be able to (i) State and explain the factors that influence the choice of fuels (ii) Explain the effects of fuels on the environment	• Listing examples of common fuels • Stating disadvantages and advantages of common fuels • Explaining effects of fuels on the environment	• Chart showing diagrams of common fuels • Pictures of common fuels • Chart showing heat values for common fuels	• Comprehensive secondary chemistry students book 4 pages 70-74 • Comprehensive chemistry teachers book 4 pages 31-32 • Secondary chemistry-KLB students book 3 page 64 • Foundation chemistry students'	

							book 4 page 88	
11	**1**	Reaction rules and reversible reactions	Introduction reaction rates	By the end of the lesson, the learner should be able to (i) Define rate of reaction	• Defining rate of reaction • Discussion on rates of reaction • Listing factors that affect the rates of reaction	• Chart on factors that affect rates of reaction	• Comprehensive secondary chemistry students book 4 pages 79 • Comprehensive chemistry teachers book 4 pages 44-45 • Secondary chemistry-KLB students book 3 page 73 • Foundation chemistry students' book 4 page 104	
	2	Reaction rates and reversible reactions	Attraction energy	By the end of the lesson, the learner should be able to (i) Explain the term actuation energy	• Discussion on actuation energy • Drawing energy law diagrams	• Chart showing energy level diagrams	• Comprehensive secondary chemistry students book 4 pages 79-80 • Comprehensive chemistry teachers book 4 pages 44-46 • Secondary chemistry-KLB students book 3 page 91 • Foundation chemistry students' book 4 page 109	
	3	Reaction rates and reversible reactions	Methods used to measure rate of reaction	By the end of the lesson,the learner should be able to (i) Describe methods used to measure rates of reaction	• Discussion on methods used to measure rate of reaction • Listing of methods used	• Chart on methods used in measuring rates of reaction • Black board	• Comprehensive secondary chemistry students book 4 pages 81 • Comprehensive chemistry teachers book 4 pages 46 • Secondary chemistry-KLB students book 3	

							page 73-74 • Foundation chemistry students' book 4 page 110	
	4-5	Reaction rates and reversible reactions	Factors that affect the rate of reactions	By the end of the lesson, the learner should be able to (i) Explain the effect of concentration of reactions on the rate of reaction	• Carrying out experiments to investigate the effects of concentration on the rate of reaction • Recording observation • Discussion based on observations • Drawing curves • Calculating the rate of reaction	• 0.05 sodium thiosulphate • 1m hydrochloric acid • Distilled water • White paper • Black/blue pen • Six 100ccm3 beakers • 10 $cm^3$and 30cm^3 measuring cylinders • Stop watch/clock	• Comprehensive secondary chemistry students book 4 pages 81-83 • Comprehensive chemistry teachers book 4 pages 46 • Secondary chemistry-KLB students book 3 page 73-82 • Foundation chemistry students' book 4 page 111	
12	**1-2**	Reaction rates and reversible reactions	Factors that affect the rate of reaction	By the end of the lesson, the learner should be able to (i) Explain the effect of pressure and surface area on the rate of reactions	• Carrying out experiments to investigate the effects of pressure and surface area on the rate of reaction • Recording observations • Discussions on observations • Drawing graphs	• Marble chips • M HCL • Mortar and pestle • Weighing balance • Two 250cm^3conical flasks	• Comprehensive secondary chemistry students book 4 pages 84-85 • Comprehensive chemistry teachers book 4 pages 46-47 • Secondary chemistry-KLB students book 3 page 78-84 • Foundation chemistry students' book 4 page 111	
	3	Reaction rates and reversible reactions	Factors that affect the rate of reaction	By the end of the lesson, the learner should be able to (i) Explain the effects of temperature on the rate of	• Carrying out experiments to investigate the effect of temperature on the rate of reaction • Recording	• 1M hydrochloric acid • Distilled water • 0.05 M • Sodium thiosulphate	• Comprehensive secondary chemistry students book 4 pages 85-86 • Comprehensive chemistry teachers	

				reaction	observations • Discussion based on observations • Drawing of graphs	• Conical flasks • Measuring cylinders • Stop watch • Thermometer • White paper • labels	book 4 pages 47 • Secondary chemistry-KLB students book 4 page 73-84 • Foundation chemistry students' book 4 page 111	
	4-5	Reaction rates and reversible reactions	Factors that affect the rate of reaction	By the end of the lesson, the learner should be able to (i) Explain the effect of catalysts and light on the rate of reaction	• Carrying out experiments to investigate the effect of catalyst and light on the rate of reaction • Recording observations • Discussion based on observations • Drawing of graphs	• 2 volumes hydrogen peroxide • Manganese (IV) oxide • Conical flask • Burettes • Stop watch • Wash bottle • Measuring cylinders	• Comprehensive secondary chemistry students book 4 pages 86-89 • Comprehensive chemistry teachers book 4 pages 48-49 • Secondary chemistry-KLB students book 3 page • Foundation chemistry students' book 4 page 111	
13	**1-2**	Reaction rates	Equilibrium	By the end of the lesson, the learner should be able to (i) Explain chemical equilibrium as a state of balance	• Discussion on reversible reactions • Drawing of graph of forward and backward reaction • Representing reversible reactions in the for of	• Charts on graphs of forward and backward reactions • Copper (ii) sulphate • Stand and clamp • Spatula • Bunsen burner	• Comprehensive secondary chemistry students book 4 pages 91-93 • Comprehensive chemistry teachers book 4 pages 49 • Secondary chemistry-KLB students book 3 page 91 • Foundation chemistry students' book 4 page 164	
	2	Reaction rates and revisable reactions	Equilibrium	By the end of the lesson, the learner should be able to (i) Explain	• Carrying out experiments to investigate acid-alkali equilibrium	• 1M sodium hydroxide • 1 M hydrochloric	• Comprehensive secondary chemistry students book 4 pages 93-95	

				chemical equilibrium as a state of balance	• and chromate dichromate equilibrium • Recording observations • Discussions based on observations	acid • 0.2 M potassium chromate (VI) solution • 250 cm^3 beaker • Measuring cylinder • 2 droppers • Phenolphthalein indicator	• Comprehensive chemistry teachers book 4 pages 49-50 • Secondary chemistry-KLB students book 3 page 94 • Foundation chemistry students' book 4 page 153	
	5	Reaction rates and reversible reactions	Factors that affect equilibrium	By the end of the lesson, the learner should be able to (i) Explain the factors that affect the position of equilibrium	• Demonstration of experiments to investigate effects of pressure and temperature on equilibrium • Recording observations • Discussion based on observations	• Nitrogen (iV) oxide • Ice cold water • 3 test tubes • Bunsen burner • Tripod stand • Wire gauze • Beaker	• Comprehensive secondary chemistry students book 4 pages 95-97 • Comprehensive chemistry teachers book 4 pages 50-51 • Secondary chemistry-KLB students book 3 page 95 • Foundation chemistry students' book 4 page 155	

CHEMISTRY FORM 4 SCHEMES OF WORK – TERM 2

WEEK	LESSON	TOPIC	SUB - TOPIC	OBJECTIVES	LEARNING/TEACHING ACTIVITIES	LEARNING/TEACHING RESOURCES	REFERENCES	
1	**1-2**	Election chemistry	Introduction Redox reactions	By the end of the lesson, the learner should be able to (i) Explain redox reactions in terms of gain and less of electrons	• Carry out experiments on redox reactions • Recording observations • Discussions based on observations • Writing redox	• 20 volume hydrogen peroxide • Iron (II) sulphate crystals • Distilled water • 2M sulphate	• Comprehensive secondary chemistry students book 4 pages 104-105 • Comprehensive chemistry teachers book 4 pages 64-65 • Secondary chemistry-	

					equations	acid • Measuring beakers • Spatula • Glass rod	KLB students book 3 page 108 • Foundation chemistry students' book 4 page 172	
	3	Electro-chemistry	Redox reactions (oxidation numbers)	By the end of the reaction the should be able to (i) Identify changes in oxidation number during redox reactions	• Discussions on oxidation numbers • Listing rules used when assigning oxidation numbers • Writing redox equations	• Chart on oxidation numbers of different elements	• Comprehensive secondary chemistry students book 4 pages 104-105 • Comprehensive chemistry teachers book 4 pages 64-65 • Secondary chemistry-KLB students book 3 page 108 • Foundation chemistry students' book 4 page 172	
	4-5	Electro-chemistry	Redox reactions (oxidation numbers)	By the end of the lesson, the learner should be able to (i) Identify changes in oxidation numbers during redox reactions	• Calculating the oxidation numbers of different elements • Writing redox reactions	• Table showing oxidation numbers of elements	• Comprehensive secondary chemistry students book 4 pages 107-108 • Comprehensive chemistry teachers book 4 pages 65 • Secondary chemistry-KLB students book 3 page 108 • Foundation chemistry students' book 4 page 172	
2	**1-2**	Electro-chemistry	Redox reaction	By the end of the lesson, the learner should be able to (i) Write balanced redox	• Carry out experiments on redox reactions • Recording observations • Discussion based on	• Potassium manganate (VII) sodium • Iron (II) sulphate • 2M Sulphiric	• Comprehensive secondary chemistry students book 4 pages 108-109 • Comprehensive	

				reactions	observations • Writing and balancing redox reactions	acid • 2M sodium hydroxide • Potassium dichromate (VI) solution • Measuring cylinder • droppers	chemistry teachers book 4 pages 65 • Secondary chemistry-KLB students book 3 page 108 • Foundation chemistry students' book 4 page 172	
	3-4	Electro-chemistry	Displacement reactions	By the end of the lesson, the learner should be able to (i) Compare the oxidating and reduction powers of ions from displacement reactions	• Carry out experiments to investigate reactions involving metals • Recording observations • Discussions based on observations • Identifying the reducing and oxidizing reagents	• 1M Copper (II) sulphate solution • Zinc powder • Copper powder • Iron powder • 1M zinc sulphate solutions • $50cm^3$ beaker • Measuring cylinder • Spatula • Glass rod	• Comprehensive secondary chemistry students book 4 pages 110-112 • Comprehensive chemistry teachers book 4 pages 65-66 • Secondary chemistry-KLB students book 3 page 116 • Foundation chemistry students' book 4 page 184	
	5	Electro-chemistry	Electrochemical cells	By the end of the lesson, the learner should be able to (i) Explain an electrochemical cell in terms of election transfer process	• Carrying out experiments to investigate an electrochemical cell in terms of transfer process • Discussion on electrochemical cells • Drawing of electrochemical cell	• Chart on electrochemical cells • Two beakers voltmeter • Electrodes • Connecting wire • Ammeter • KNO_3	• Comprehensive secondary chemistry students book 4 pages 113-114 • Comprehensive chemistry teachers book 4 pages 67 • Secondary chemistry-KLB students book 3 page 123 • Foundation chemistry students' book 4 page 194	
3	**1-2**	Electro-chemistry	Electrochemical cells	By the end of the lesson, the learner should be able	• Carry out experiments to	• 1M copper (II) sulphate	• Comprehensive secondary chemistry	

				to (i) Explain electrochemical cells in terms of electron transfer process	investigate electron transfer reactions • Recording observations • Discussion based on observations • Writing redox reactions involved	solution • 1M potassium nitrate solution • Copper and zinc straps • Ammeter • Voltmeter • Beakers • switchers	students book 4 pages 114-116 • Comprehensive chemistry teachers book 4 pages 67 • Secondary chemistry-KLB students book 3 page 123 • Foundation chemistry students' book 4 page 194	
	3-4	Electro-chemistry	Cell diagrams and notation	By the end of the lesson, the learner should be able to (i) Draw cell diagrams and white cell notation	• Carry out experiments to measure e.m.f of an electrochemical • Recording observations • Discussion based on observation • Drawing the cell diagrams • Writing cell notation	• Copper strip • Zinc strip lead strip • Magnesium ribbon • 1M zinc sulphate solution • 1M lead (II) nitrate • Switch • voltmeter	• Comprehensive secondary chemistry students book 4 pages 116-119 • Comprehensive chemistry teachers book 4 pages 67 • Secondary chemistry-KLB students book 3 page 127-129 • Foundation chemistry students' book 4 page 202	
	5	Electro-chemistry	Construction and working of electrochemical cells	By the end of the lesson, the learner should be able to (i) Explain the construction and working of an electro chemical cell such as Zinc-copper cell	• Demonstration of experiment of construct and work an electrochemical cell • Recording observations • Discussions based on observations • Writing cell notation	• Copper strip • Zinc strip • 1M copper sulphate solution • 1 M zinc sulphate solution • 1M potassium nitrate • Two 250 cm^3 beakers • Switches • voltmeters	• Comprehensive secondary chemistry students book 4 pages 116-118 • Comprehensive chemistry teachers book 4 pages 67 • Secondary chemistry-KLB students book 3 page 123 • Foundation chemistry students' book 4 page 194	

4	**1-2**	Electro-chemistry	Working and electrochemical cells	By the end of the lesson, the learner should be able to (i) Explain the working of electrochemical cells	• Drawings of Zinc-Copper cell • Identifying the anode and cathode • Discussion on the working of electro-chemical cells	• Zinc strip • Copper strip • Sulphate solution • 1M zinc Sulphate solution • 1M potassium nitrate • Connecting wires • Bulb holders	• Comprehensive secondary chemistry students book 4 pages 116 • Comprehensive chemistry teachers book 4 pages 67 • Secondary chemistry-KLB students book 3 page 123 • Foundation chemistry students' book 4 page 194	
	3	Electro-chemistry	Electromotive force of a cell (e.m.f)	By the end of the lesson, the learner should be able to (i) Calculate the electromotive force (e.m.f) of a cell, given the electrode potentials	• Discussion based on the electromotive cell • Calculating the e.m.f of the cell	• Chart on electrochemical cell • An electrochemical cell	• Comprehensive secondary chemistry students book 4 pages 114-225 • Comprehensive chemistry teachers book 4 pages 67 • Secondary chemistry-KLB students book 3 page • Foundation chemistry students' book 4 page 203	
	4-5	Electro-chemistry	Standard electrode potential	By the end of the lesson, the learner should be able to (i) Calculate the electrometer force (e.m.f) of a cell given the standard electrode potentials	• Carrying out experiments to measure electrode potentials • Recording observations • Discussion based in observations • Calculation of e.m.f of a cell	• Zinc strip • Copper strip • 1M copper (II) sulphate solution • 1M hydrochloric acid • 1 M zinc sulphate • Potassium nitrate solution • Beakers	• Comprehensive secondary chemistry students book 4 pages 120-123 • Comprehensive chemistry teachers book 4 pages 68-69 • Secondary chemistry-KLB students book 4 page 129 • Foundation chemistry students'	

						• Voltmeter • Hydrogen electrode	book 4 page 206	
5	**1-2**	Electro-chemistry	electrolysis	By the end of the lesson, the learner should be able to (i) Define electrolysis (ii) Explain the role of water in electrolysis	• Defining the terms electrolysis • Carrying out an experiment to investigate electrolysis of dilute sulphuric (VI) acid • Explaining the role of water in electrolysis	• Concentrated H_2SO_4 • Distilled water • 2 ignition tubes • Clamp and stand • 6V dc battery • Voltmeter • Improvised voltmeter • Wooden splint • Connecting wires • Crocodile chips • Carbon rods	• Comprehensive secondary chemistry students book 4 pages 125-127 • Comprehensive chemistry teachers book 4 pages 69-70 • Secondary chemistry-KLB students book 4 page 141 • Foundation chemistry students' book 4 page 218	
	3-4	Electro-chemistry	Factors affecting preferential discharge of ions	By the end of the lesson, the learner should be able to (i) State and explain the factors that affect the preferential discharge of ions during electrolysis	• Carry out experiments to investigate ionic • Concentrated of the electrolyte • Recording observations • Discussions based on observations • Listing the factors that affect discharge of ions	• Sodium chloride • Distilled water • Magnesium sulphate solution • Battery improvised voltmeter • Weighing balance • Measuring cylinder • Wooden splints • Blue litmus paper	• Comprehensive secondary chemistry students book 4 pages 127-132 • Comprehensive chemistry teachers book 4 pages 70-71 • Secondary chemistry-KLB students book 4 page 153 • Foundation chemistry students' book 4 page 218	
	5	Electro-chemistry	Quantitative analysis of electrolysis	By the end of the lesson, the learner should be able to (i) Relate the quantity of electricity based to the amount of substances	• Carrying out the experiment to investigate quantity of electricity used to deposit copper • Recording observations • Discussion based on the observations	• Two clean strips of copper • 0.1M copper sulphate solution • Propanone • Ethanol • Rheostat • Ammeter	• Comprehensive secondary chemistry students book 4 pages 132-135 • Comprehensive chemistry teachers book 4 pages 71 • Secondary chemistry-	

				liberated at the electrolyses	• Calculating the quantity of electricity used and mass deposited at electrodes	• Stopwatch/ clock • Crocodile clips • Switch	KLB students book 4 page 160 • Foundation chemistry students' book 4 page 218	
6	**1-2**	Electro-chemistry	Application of electrolysis	By the end of the lesson, the learner should be able to (i) Describe some applications of electrolysis	• Carrying out experiments to show electroplating • Recording observations • Discussion based in observations • Listing applications of electrolysis	• Nickel and copper strips • 2M sodium hydroxide solution • Distilled water • Connecting wires • switches	• Comprehensive secondary chemistry students book 4 pages 135-139 • Comprehensive chemistry teachers book 4 pages 72 • Secondary chemistry-KLB students book 4 page 155 • Foundation chemistry students' book 4 page 243	
	3	Metals	Chief metal ores of sodium iron, aluminum zinc, lead and copper	By the end of the lesson, the learner should be able to (i) Name the chart ores of some metals	• Discussion on chief metal ores • Listing the chief metal ores	• The periodic table	• Comprehensive secondary chemistry students book 4 pages 146 • Comprehensive chemistry teachers book 4 pages 94-95 • Secondary chemistry-KLB students book 4 page 168 • Foundation chemistry students' book 4 page 260	
	4-5	Metals	Extraction of metals	By the end of the lesson, the learner should be able to (i) Describe and explain the general methods	• Discussion on the extraction of metals • Drawing of the froth-flotation process	• Chart on the froth-flotation process	• Comprehensive secondary chemistry students book 4 pages 146-149 • Comprehensive chemistry teachers	

				used in extraction of metals for their ores			book 4 pages 94-95 • Secondary chemistry-KLB students book 4 page 169 • Foundation chemistry students' book 4 page 260	
7	**1-2**	Metals	Sodium occurrence, extraction properties and uses	By the end of the lesson, the learner should be able to (i) Describe the methods for the extraction of sodium from its ores (ii) Explain the physical and chemical properties of sodium (iii) List uses of sodium	• Describing the method of extracting sodium from its ores • Drawing the downs' cell • Writing the anode from cathode reactions • Listings the uses of sodium	• Charts showing downs' cell diagram • Sodium metal • Litmus solutions • Test tube • A pair of tongs • Aluminum foil • Trough	• Comprehensive secondary chemistry students book 4 pages 149-152 • Comprehensive chemistry teachers book 4 pages 94-96 • Secondary chemistry-KLB students book 4 page 170-171 • Foundation chemistry students' book 4 page 261	
	3	metals	Aluminum occurrence and extraction	By the end of the lesson, the learner should be able to (i) Describe suitable methods for the extraction of aluminum from its ores	• Explaining the occurrence of aluminum • Describing the suitable method of aluminum extraction • Writing the anode and cathode reactions	• Chart showing the flow diagram for aluminum extraction	• Comprehensive secondary chemistry students book 4 pages 152-154 • Comprehensive chemistry teachers book 4 pages 94-97 • Secondary chemistry-KLB students book 4 page 171-173 • Foundation chemistry students' book 4 page 267	
	4-5	Metals	Properties and uses of aluminum	By the end of the lesson, the learner should be able to	• Demonstration of experiments to investigate	• Aluminum foil • Dilute HCL • Dilute nitric	• Comprehensive secondary chemistry students book 4	

				(i) State the chemical and physical properties of aluminum and its uses	• reactions of aluminum • Recording observations • Discussion based on observations • Writing of relevant chemical equations	• acid • Dilute sulphuric acid • Concentrated nitric acid • Concentrated sulphuric acid • Test tubes • Test tube racks • Measuring cylinder	pages 155-158 • Comprehensive chemistry teachers book 4 pages 96-97 • Secondary chemistry-KLB students book 4 page 195 • Foundation chemistry students' book 4 page 269-270	
8	**1-2**	Metals	Iron occurrence and extraction	By the end of the lesson, the learner should be able to (i) Explain the occurrence of iron (ii) Describe and explain the method of extraction of iron	• Explaining the occurrence of iron • Discussion on the extraction of iron • Drawing of blast furnace • Writing the relevant chemical equations	• Chart showing blast furnace and chemical equations involved	• Comprehensive secondary chemistry students book 4 pages 158-160 • Comprehensive chemistry teachers book 4 pages 94 • Secondary chemistry-KLB students book 4 page 173 • Foundation chemistry students' book 4 page 277	
	3-4	metals	Properties and use of iron	By the end of the lesson, the learner should be able to (i) Describe and explain physical and chemical properties of iron (ii) List uses of iron and its alloys	• Carrying out experiments to investigate properties of iron • Recording observations • Discussions based on observations • Writing relevant chemical equations • Listing uses of iron and its alloys	• Iron powder • Combustion tube • Test tube rack • Bunsen burner • Spatula • Dilute and concentrated hydrochloric acids • Dilute and concentrated sulphuric acids	• Comprehensive secondary chemistry students book 4 pages 160-164 • Comprehensive chemistry teachers book 4 pages 94 • Secondary chemistry-KLB students book 4 page 196 • Foundation chemistry students' book 4 page 282	

	5	Metals	Copper occurrence and extraction	By the end of the lesson, the learner should be able to (i) Explain the occurrence of copper (ii) Select and describe suitable method for extraction of copper	• Explaining the occurrence of copper • Describing suitable methods of copper extraction from pyrates ($CuFeS_2$ • Writing relevant chemical equations	• Charts on blast finance for the extraction of copper	• Comprehensive secondary chemistry students book 4 pages 164-166 • Comprehensive chemistry teachers book 4 pages 94 • Secondary chemistry-KLB students book 4 page 181 • Foundation chemistry students' book 4 page 287	
9	**1-2**	Metals	Properties of copper and its uses	By the end of the lesson, the learner should be able to (i) Describe and explain physical and chemical properties of copper and list its uses	• Carrying out experiments to investigate reactions of copper • Recording observations • Discussion based on observations • Writing relevant chemical equations	• Copper powder • Crucible • Pair of tongs • Spatula • Tripod stand • Source of heat • Dilute and concentrated acids (nitric acid, sulphuric acid and hydrochloric acid	• Comprehensive secondary chemistry students book 4 pages 166-168 • Comprehensive chemistry teachers book 4 pages 97 • Secondary chemistry-KLB students book 4 page 197 • Foundation chemistry students' book 4 page 289	
	3-4	metals	Zinc: occurrence of extraction, properties and uses	By the end of the lesson, the learner should be able to (i) Describe and explain the occurrence, extraction properties and use of zinc	• Describing the occurrence, extraction and physical properties of zinc • Carrying our experiment to investigate reaction of zinc with mineral acid • Explaining the	• Aluminum sheet • Mineral acids • Test tubes • Test tube holder • Spatula • Rest tube holder • Small beaker • 5 cm^3	• Comprehensive secondary chemistry students book 4 pages 169-172 • Comprehensive chemistry teachers book 4 pages 94,98 • Secondary chemistry-KLB students book 4	

					chemical properties of zinc • Listing uses of zinc • Writing relevant equations	measuring cylinder • Test tube with arm	page 175 • Foundation chemistry students' book 4 page 273	
	5	metals	Pollution of the environment	By the end of the lesson, the learner should be able to (i) Describe the effects of industrial production process of metal on the environment	• Discussion on pollution of the environment by industrial production processes	• Articles and photographs from scientific journals	• Comprehensive secondary chemistry students book 4 pages 176 • Comprehensive chemistry teachers book 4 pages 96-98 • Secondary chemistry-KLB students book 4 page 197 • Foundation chemistry students' book 4 page 292	
10	**1-2**	Metals	Lead: occurrence, extraction properties and uses	By the end of the lesson, the learner should be able to describe and explain the occurrence, extraction properties and uses of lead	• Describing occurrence, extraction and physical properties of lead • Explaining the chemical properties of lead • Carrying out experiments to investigate reactions of lead with solute acids and chlorine • Recording observations • Discussions based on observations • Writing relevant chemical equations	• Dilute acids • Concentrated acids • Lead • Test tubes • Test tube holders • Measuring cylinders	• Comprehensive secondary chemistry students book 4 pages 172-174 • Comprehensive chemistry teachers book 4 pages 94,98 • Secondary chemistry-KLB students book 4 page 179 • Foundation chemistry students' book 4 page 285	
	3	Alkanols and	Naming and	By the end of the lesson,	• Drawing the	• Charts showing	• Comprehensive	

		alkanoic acids	drawing structure of alkanols	the learner should be able to name and draw the structure of simple alkanols	structures of alkanols • Assigning names to alkanol molecules	structures of alkanols	secondary chemistry students book 4 pages 180-182 • Comprehensive chemistry teachers book 4 pages 107-109 • Secondary chemistry-KLB students book 4 page 206 • Foundation chemistry students' book 4 page 305	
	4	Alkanols and alkanoic acids	Preparation and properties of alkanols	By the end of the lesson, the leaner should be able to (i) Describe the preparations and explain the physical and chemical properties of alkanols	• Carrying out experiments on the preparations of ethanol • Recording observation • Discussion based on observations • Discussion on physical properties of alkanols • Describing chemical properties of Alkanols	• Glucose, yeast • Water- lime water • Round bottomed flask • Measuring cylinder • Thermometer (-10^0C-110^0C) • Broken porcelain • Air-lock apparatus	• Comprehensive secondary chemistry students book 4 pages 182-188 • Comprehensive chemistry teachers book 4 pages 107-111 • Secondary chemistry-KLB students book 4 page 210 • Foundation chemistry students' book 4 page 307	
	5	Alkanols and alkanoic acids	Uses of alkanols	By the end of the lesson, the learner should be able to (i) State and explain the uses of some alkanols	• iscussion on uses of alkanols • Listing uses of alkanols	• Methanol • Ethanol • Chart showing the uses of alkanols	• Comprehensive secondary chemistry students book 4 pages 189-190 • Comprehensive chemistry teachers book 4 pages 115 • Secondary chemistry-KLB students book 4	

							page 218 • Foundation chemistry students' book 4 page 327	
CHEMISTRY FORM 4 SCHEMES OF WORK – TERM 3								
WEEK	**LESSON**	**TOPIC**	**SUB - TOPIC**	**OBJECTIVES**	**LEARNING/TEACHING ACTIVITIES**	**LEARNING/TEACHING RESOURCES**	**REFERENCES**	
1	**1-2**	Alkanols and Alkanoic acids	Naming and drawing structure of alkanoic acids	By the end of the lesson, the learner should be able to (i) Name and draw the structure of simple alkanoic acids	• Drawing structures of alkanoic acids • Assigning names to alkanoic molecules	• Chart showing structures of alkanoic acids	• Comprehensive secondary chemistry students book 4 pages 189-190 • Comprehensive chemistry teachers book 4 pages 115 • Secondary chemistry-KLB students book 4 page 218 • Foundation chemistry students' book 4 page 327	
	3-4	Alkanols And alkanoic acids	Preparation and properties of alkanoic acids	By the end of the lesson, the learner should be able to (i) Describe the preparation and explain the physical and chemical properties of alkanoic acids	• Demonstration of experiments to prepare ethanoic acids • Recording observations • Discussion based on observations • Writing relevant chemical equations • Describing physical properties of alkanoic acids • Explaining chemical	• Ethanol • Concentrated sulphuric acid • Potassium dichromate • Distilled water • Round bottomed flask • Leibig condenser • Measuring cylinder • Thermometer beaker	• Comprehensive secondary chemistry students book 4 pages 193-195 • Comprehensive chemistry teachers book 4 pages 109-111 • Secondary chemistry-KLB students book 4 page • Foundation	

					properties of alkanoic acids	•	chemistry students' book 4 page	
	5	Alkanols and alkanoic acids	Uses of alkanoic acids	By the end of the lesson, the learner should be able to (i) State and explain the uses of alkanoic acids	• Discussion on uses of alkanoic acids • Writing relevant chemical equations	• Chart showing uses of alkanoic acids • Ethanoic acids	• Comprehensive secondary chemistry students book 4 pages 196-197 • Comprehensive chemistry teachers book 4 pages 115 • Secondary chemistry-KLB students book 4 page • Foundation chemistry students' book 4 page	
2	**1-2**	Alaknola and alkanoic acids	Detergents	By the end of the lesson, the learner should be able to (i) Describe and explain preparation and properties of detergents	• Carrying out experiments on preparation of soaps and soap less detergents • Recording observations • Discussion based on observations • Explaining the properties of soaps and soap less detergents	• 4M sodium hydroxide • Sodium chloride • Castor oil • Distilled water • Concentrated sulphuric acid • Bathing tube • Bunsen burner • Glass rod • Spatula • Measuring cylinder	• Comprehensive secondary chemistry students book 4 pages 197-200 • Comprehensive chemistry teachers book 4 pages 112 • Secondary chemistry-KLB students book 4 page • Foundation chemistry students' book 4 page	
	3-4	Alkanols and alkanoic acids	Uses of detergents and effects of hard water on detergents	By the end of the lesson, the learner should be able to (i) State and explain the uses of detergents (ii) Explain the effects of	• Explaining the uses of detergent • Carrying out experiments to show effects of hard metal on soaps and soap less detergents • Recording observations	• Soaps • Soap less detergents • Tap water • Distilled water • Warm water • beakers	• Comprehensive secondary chemistry students book 4 pages 200 • Comprehensive chemistry teachers book 4 pages 112 • Secondary chemistry-	

				hard water on detergents	• Discussion on the effects of hard water on detergents		KLB students book 4 page • Foundation chemistry students' book 4 page	
	5	Alkanols and alkanoic acids	Natural polymers	By the end of the lesson, the learner should be able to (i) List some natural polymers and state their uses	• Listing examples of natural polymers • Drawing structures of cellulose natural rubber and vulcanized rubber • Listing uses of natural polymers	• Chart showing structure of natural polymers • Chart on uses of natural polymers	• Comprehensive secondary chemistry students book 4 pages 101-202 • Comprehensive chemistry teachers book 4 pages 113-114 • Secondary chemistry-KLB students book 4 page • Foundation chemistry students' book 4 page	
3	**1-2**	Alkanols and alkanoic acids	Synthetic polymers and fibers and their uses	By the end of the lesson, the learner should be able to (i) List some synthetic polymers and fibers (ii) Describe the preparation and properties of synthetic polymers (iii) State the uses of synthetic polymers	• Carrying out experiments to make nylon 66 • Recording observations • Discussion based on observations • Writing relevant chemical equations • Describing properties of synthetic polymers • Listing the uses of synthetic polymers	• 2M sodium hydroxide • Ethanol solution of hexane 1:6-dramine • Pair of tongs • Test tube • Bunsen burner	• Comprehensive secondary chemistry students book 4 pages 203-211 • Comprehensive chemistry teachers book 4 pages 113-114 • Secondary chemistry-KLB students book 4 page • Foundation chemistry students' book 4 page	
	3	Alkanols and alkanoic acids	Structure of polymers	By the end of the lesson, the learner should be able	• Discussions on structures of	• Chart showing structures of	• Comprehensive secondary chemistry	

				to (i) Identify the structure of a polymer given the monomer	polymers • Drawing polymers from given monomers	polymers and monomers	students book 4 pages 204-205 • Comprehensive chemistry teachers book 4 pages114 • Secondary chemistry-KLB students book 4 page • Foundation chemistry students' book 4 page	
	4-5	Alkanols and alkanoic acid	Advantages and disadvantages of sythentic material over natural polymers	By the end of the lesson, the learner should be able to (i) State the advantages and disadvantage s of synthetic materials compared to those of natural origin in terms of their structure and properties	• Discussions on sythentic and natural polymers • Listing the advantage and disadvantages of sythentic natural polymers	• Chart showing advantages and disadvantages of synthetic polymers against natural polymers	• Comprehensive secondary chemistry students book 4 pages 212,214 • Comprehensive chemistry teachers book 4 pages114 • Secondary chemistry-KLB students book 4 page • Foundation chemistry students' book 4 page	
4	**1-2**	Radio- activity	Introduction: stability of isotopes of elements	By the end of the lesson, the leaner should be able to (i) Define radio-activity half-life, radio-isotopes and nuclides (ii) Name the particles emitted during radioactive decay	• Defining the terms radioactivity, half-life, radio-isotopes and nuclides • Naming particles emitted during radioactive decay	• Chart on determinations of half-life, radio-isotopes • Chart on particles emitted during radio decay	• Comprehensive secondary chemistry students book 4 pages 220-221 • Comprehensive chemistry teachers book 4 pages126-127 • Secondary chemistry-KLB students book 4 page • Foundation chemistry students'	

							book 4 page	
	3-4	Radio-activity	Radio active decay	By the end of the lesson, the learner should be able to (i) State types of radio-activity (ii) List the properties of particles emitted during radio-active decay	• Discussion on types of particles emitted during radio-active decay • Listing properties of particles emitted during radio active decay	• Chart showing simple nuclear equation	• Comprehensive secondary chemistry students book 4 pages 222-225 • Comprehensive chemistry teachers book 4 pages127-128 • Secondary chemistry-KLB students book 4 page • Foundation chemistry students' book 4 page	
	5	Radioactivity	Half-life of radio-isotopes	By the end of the lesson, the learner should be able to (i) Carry out simple calculations involving half-life ($\&^1/_2$)	• Discussion on half-life ($\&^1/_2$) • Calculating half life ($\&^1/_2$)	• Charts showing graphs on half life's of different elements	• Comprehensive secondary chemistry students book 4 pages 225-228 • Comprehensive chemistry teachers book 4 pages128 • Secondary chemistry-KLB students book 4 page • Foundation chemistry students' book 4 page	
5	**1-2**	Radio-activity	Nuclear equations	By the end of the lesson, the learner should be able to (i) Write a balanced nuclear equations	• Discussion on nuclear equations • Writing balanced nuclear equations	• Chart on balance nuclear equations	• Comprehensive secondary chemistry students book 4 pages 228-231 • Comprehensive chemistry teachers book 4 pages128 • Secondary chemistry-KLB students book 4	

							page • Foundation chemistry students' book 4 page	
	3-4	Radio activity	Nuclear fission and fussion	By the end of the lesson, the learner should be able to (i) Distinguish between nuclear fission and fusion	• Discussion on nuclear fission and fusion • Calculating the energy released in the process • Distinguishing between nuclear fission and fusion	• Chart showing controlled and uncontrolled fission reactions	• Comprehensive secondary chemistry students book 4 pages 232-237 • Comprehensive chemistry teachers book 4 pages129 • Secondary chemistry-KLB students book 4 page • Foundation chemistry students' book 4 page	
	5	Radio activity	Applications of radio-isotopes	By the end of the lesson, the learner should be able to (i) State uses of some radio-isotopes (ii) List the halogens associated with radioactivity	• Discussion on uses and changes of radio-activity • Writing simple nuclear equations	• Chart on uses and dangers of radioactivity	• Comprehensive secondary chemistry students book 4 pages 238-243 • Comprehensive chemistry teachers book 4 pages129 • Secondary chemistry-KLB students book 4 page • Foundation chemistry students' book 4 page	