**CHEMISTRY SCHEMES OF WORK FORM 2**

**TERM 2**

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| **WK** | **LSN** | **TOPIC** | **SUB-TOPIC** | **OBJECTIVES** | **T/L ACTIVITIES** | **T/L AIDS** | **REFERENCE** | **REMARKS** |
| 1 | **Opening of School** | | | | | | | |
| 2 | 1 | CHEMICAL FAMILIES | Chemical properties of alkaline earth metals. Reaction of alkaline earth metals with oxygen. | By the end of the lesson, the learner should be able to:  To describe reaction of alkaline earth metals with oxygen | Q/A: Review reactions of Mg, Ca, with oxygen.  The corresponding word and then chemical equations are then written and their correctness verified by the teacher. | text book | K.L.B. BOOK IIP. 38 |  |
| 2 | CHEMICAL FAMILIES | Chemical properties of alkaline earth metals. Reaction of alkaline earth metals with oxygen. | By the end of the lesson, the learner should be able to:  To describe reaction of alkaline earth metals with oxygen | Q/A: Review reactions of Mg, Ca, with oxygen.  The corresponding word and then chemical equations are then written and their correctness verified by the teacher. | text book | K.L.B. BOOK IIP. 38 |  |
| 3 | CHEMICAL FAMILIES | Chemical properties of alkaline earth metals. Reaction of alkaline earth metals with water. | By the end of the lesson, the learner should be able to:  To describe reaction of alkaline earth metals with water. | Q/A: Review reaction of metals with water. Writing down word and balanced chemical equations for the reactions. Deduce and discuss the order of reactivity down the group. | Some alkaline earth metals. | K.L.B. BOOK IIP. 39 |  |
| 4 | CHEMICAL FAMILIES | Reaction of alkaline earth metals with chlorine gas. | By the end of the lesson, the learner should be able to:  To write balanced equations for reaction of alkaline earth metals with chlorine gas. | Teacher demonstration- Reaction of sodium with chlorine in a fume chamber. Q/A: Students to predict a similar reaction between potassium and chlorine. Word and balanced chemical equations for various reactions. Supervised practice. | Sodium, chlorine. | K.L.B. BOOK II P. 41 |  |
| 3 | 1 | CHEMICAL FAMILIES | Reaction of alkaline earth metals with dilute acids. | By the end of the lesson, the learner should be able to:  To write balanced equations for reactions of alkaline earth metals with dilute acids. | Changing word to chemical equations. Supervised practice. | revision book | K.L.B. BOOK II PP. 43 |  |
| 2 | CHEMICAL FAMILIES | Reaction of alkaline earth metals with dilute acids. | By the end of the lesson, the learner should be able to:  To write balanced equations for reactions of alkaline earth metals with dilute acids. | Changing word to chemical equations. Supervised practice. | revision book | K.L.B. BOOK II PP. 43 |  |
| 3 | CHEMICAL FAMILIES | Chemical formulae of alkaline earth metals. | By the end of the lesson, the learner should be able to:  Write chemical formulae for compounds of alkaline earth metals. Explain formation of hydroxides, oxides and chlorides of alkaline earth metals. | Exercise: Completing a table of hydroxides, oxides and chlorides of alkaline earth metals. Discuss combination of ions of alkaline earth metals with anions. | text book | K.L.B. BOOK II PP. 45-47 |  |
| 4 | CHEMICAL FAMILIES | Chemical formulae of alkaline earth metals. | By the end of the lesson, the learner should be able to:  Write chemical formulae for compounds of alkaline earth metals. Explain formation of hydroxides, oxides and chlorides of alkaline earth metals. | Exercise: Completing a table of hydroxides, oxides and chlorides of alkaline earth metals. Discuss combination of ions of alkaline earth metals with anions. | text book | K.L.B. BOOK II PP. 45-47 |  |
| 4 | 1 | CHEMICAL FAMILIES | Uses of some alkaline earth metals and their compounds. | By the end of the lesson, the learner should be able to:  State uses of alkaline earth metals. | Descriptive approach: Teacher elucidates uses of alkaline earth metals. | text book | K.L.B. BOOK II PP. 45-47 |  |
| 2 | CHEMICAL FAMILIES | Halogens. Physical properties of halogens. | By the end of the lesson, the learner should be able to:  Identify halogens in the periodic table. Give examples of halogens. Identify physical states of halogens. | Teacher demonstration: - To examine electrical properties of iodine, solubility in water of chlorine. | Iodine crystals, electrical wire, a bulb. | KLB BK II P. 47 |  |
| 3 | CHEMICAL FAMILIES | Comparative physical properties of halogens. Chemical properties of halogens. | By the end of the lesson, the learner should be able to:  To state and explain the trends in physical properties of halogens. To describe laboratory preparation of chlorine gas. To describe reaction of halogens with metals. | Examine a comparative table of physical properties of halogens. Discuss the deductions made from the table. Teacher demonstration: - preparation of chlorine gas. Reaction of chlorine and iron wool. Reaction of bromine and iron wool. Reaction of iodine and iron wool. Observe the rate of these reactions; hence deduce order of their reactivity of halogens. | text book Chlorine, iron wool, bromine. | K.L.B. BOOK II P. 47 |  |
| 4 | CHEMICAL FAMILIES | Equations of reaction of halogens with metals. | By the end of the lesson, the learner should be able to:  To write balanced chemical equations of reactions involving halogens. | Re-write word equations as chemical equations then balance them.  Supervised practice. | text book | K.L.B. BOOK II P. 50 |  |
| 5 | 1 | CHEMICAL FAMILIES | Reaction of halogens with water. | By the end of the lesson, the learner should be able to:  To describe reaction of halogens with water and the results obtained. | Bubbling chlorine gas through water. Carry out litmus test for the water. Explain the observations. | Chlorine gas, litmus papers. | K.L.B. BOOK II P. 51 |  |
| 2 | CHEMICAL FAMILIES | Reaction of halogens with water. | By the end of the lesson, the learner should be able to:  To describe reaction of halogens with water and the results obtained. | Bubbling chlorine gas through water. Carry out litmus test for the water. Explain the observations. | Chlorine gas, litmus papers. | K.L.B. BOOK II P. 51 |  |
| 3 | CHEMICAL FAMILIES | Reaction of halogens with water. | By the end of the lesson, the learner should be able to:  To describe reaction of halogens with water and the results obtained. | Bubbling chlorine gas through water. Carry out litmus test for the water. Explain the observations. | Chlorine gas, litmus papers. | K.L.B. BOOK II P. 51 |  |
| 4 | CHEMICAL FAMILIES | Some uses of halogens and their compounds. | By the end of the lesson, the learner should be able to:  To state uses of halogens and their compounds. | Teacher elucidates uses of halogens and their compounds. | text book | K.L.B. BOOK II pp 52 |  |
| 6 | 1 | CHEMICAL FAMILIES | Noble Gases. Comparative physical properties of noble gases. Uses of noble gases. | By the end of the lesson, the learner should be able to:  To describe physical properties of noble gases. To explain physical properties of noble gases. State uses of noble gases. | Make A comparative analysis of tabulated physical properties of noble gases. Teacher elucidates uses of noble gases. | text book | K.L.B. BOOK IIPP. 52-53 |  |
| 2 | STRUCTURE & BONDING | Chemical bonds. Ionic bond. Ionic bond representation. | By the end of the lesson, the learner should be able to:  Describe role of valence electrons in determining chemical bonding. Explain formation of ionic bonding. Use dot and cross diagrams to represent ionic bonding. | Q/A: Review valence electrons of atoms of elements in groups I, II, III, VII and VIII. Q/A: Review group I and group VII elements. Discuss formation of ionic bond. Drawing diagrams of ionic bonds. | text book Chart- dot and cross diagrams. Models for bonding. | K.L.B. BOOK IIP54     PP 57-58 |  |
| 3 | STRUCTURE & BONDING | Grant ionic structures. | By the end of the lesson, the learner should be able to:  Describe the crystalline ionic compound. Give examples of ionic substances. | Discuss the group ionic structures of NaCl. Teacher gives examples of other ionic substances: KNO3, potassium bromide, Ca (NO3)2, sodium iodide. | Giant sodium chloride model. | K.L.B. BOOK II PP 56-58 |  |
| 4 | STRUCTURE & BONDING | Physical properties of ionic compounds. Covalent bond. | By the end of the lesson, the learner should be able to:  Describe physical properties of ionic compounds. Explain the differences in the physical properties of ionic compounds. Explain the formation of covalent bond Use dot and cross diagrams to represent covalent bond. | Analyse tabulated comparative physical properties of ionic compounds. Teacher asks probing questions. Exposition: Shared pair of electrons in a hydrogen molecule, H2O, NH3, Cl2, and CO2. Drawing of dot-and-cross diagrams of covalent bonds. | text book | K.L.B. BOOK IIPP 58-59 |  |
| 7 | 1 | STRUCTURE & BONDING | Co-ordinate bond. | By the end of the lesson, the learner should be able to:  To describe the co-ordinate bond To represent co-ordinate bond diagrammatically. | Exposition- teacher explains the nature of co-ordinate bond. Students represent co-ordinate bond diagrammatically. | text book | K.L.B. BOOK II P 65 |  |
| 2 | STRUCTURE & BONDING | Molecular structure. Trend in physical properties of molecular structures. | By the end of the lesson, the learner should be able to:  To describe the molecular structure. To give examples of substance exhibiting molecular structure To describe van- der -waals forces. To explain the trend in physical properties of molecular structures. | Discussion ? To explain formation of the giant structure and give examples of substance exhibiting molecular structure. Discuss comparative physical properties of substances. exhibiting molecular structure. Explain variation in the physical properties. | text book Sugar, naphthalene, iodine rhombic sulphur. | K.L.B. BOOK IIP 65 |  |
| 3 | STRUCTURE & BONDING | Giant atomic structure in diamond. | By the end of the lesson, the learner should be able to:  To describe giant atomic structure in diamond.  To state uses of diamond. | Diagrammatic representation of diamond. Discuss uses of diamond. | Diagrams in textbooks. | K.L.B. BOOK II P 69 |  |
| 4 | STRUCTURE & BONDING | Giant atomic structure in graphite. Metallic bond. Uses of some metals. | By the end of the lesson, the learner should be able to:  To describe giant atomic structure in graphite. To state uses of graphite. To describe mutual electronic forces between electrons and nuclei. To describe metallic bond. To compare physical properties of metals. To state uses of some metals. | Diagrammatic representation of graphite.  Discuss uses of graphite. Discussion: Detailed analysis of comparative physical properties of metals and their uses. Probing questions & brief explanations. | Diagrams in textbooks. text book | K.L.B. BOOK II pp 69 |  |
| 8 | Mid Term Exams and Break | | | | | | | |
| 9 | 1 | PROPERTIES AND TRENDS ACROSS PERIOD THREE | Physical properties of elements in periods. | By the end of the lesson, the learner should be able to:      To compare electrical conductivity of elements in period 3 | Group experiments- Construct electrical circuits incorporating a magnesium ribbon, then aluminum foil, then sulphur in turns. The brightness of the bulb is noted in each case. Discuss the observations in terms of delocalised electrons. | The periodic table. | K.L.B. BOOK IIP. 76 |  |
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| 3 | PROPERTIES AND TRENDS ACROSS PERIOD THREE | Physical properties of elements in period 3. Chemical properties of elements in period 3. | By the end of the lesson, the learner should be able to:  To compare other physical properties of elements across period 3. To compare reactions of elements in period 3 with oxygen. | Analyse comparative physical properties presented in form of a table. Explain the trend in the physical properties given. Q/A: Products of reactions of Na, Mg, Al, P, & S with oxygen. Discuss the trend in their reactivity; identify basic and acidic oxides. Exercise ? balanced chemical equations for the above reactions. | The periodic table. | K.L.B. BOOK II P. 77 |  |
| 4 | PROPERTIES AND TRENDS ACROSS PERIOD THREE | Chemical properties of elements in the third period. | By the end of the lesson, the learner should be able to:  To compare reactions of elements in period 3 with water | Q/A: Review reaction of sodium, Mg, chlorine, with water.  Infer that sodium is most reactive metal; non-metals do not react with water. | The periodic table. | K.L.B. BOOK II PP. 80-81 |  |
| 10 | 1 | PROPERTIES AND TRENDS ACROSS PERIOD THREE | Oxides of period 3 elements. Chlorides of period 3 elements. | By the end of the lesson, the learner should be able to:  To identify bonds across elements in period 3. To explain chemical behavior of their oxide. To explain chemical behavior of their chlorides. To describe hydrolysis reaction. | Comparative analysis, discussion and explanation. | The periodic table. | K.L.B. BOOK II P. 84 |  |
| 2 | SALTS | Types of salts. | By the end of the lesson, the learner should be able to:  Define a salt. Describe various types of salts and give several examples in each case. | Descriptive approach. Teacher exposes new concepts. | text book | K.L.B. BOOK II P. 91 |  |
| 3 | SALTS | Solubility of salts in water. | By the end of the lesson, the learner should be able to:  To test solubility of various salts in cold water/warm water. | Class experiments- Dissolve salts in 5 cc of water. Record the solubility in a table, Analyse the results. | Sulphates, chlorides, nitrates, carbonates of various metals. | K.L.B. BOOK II PP. 92-93 |  |
| 4 | SALTS | Solubility of bases in water. | By the end of the lesson, the learner should be able to:  To test solubility of various bases in water. To carry out litmus test on the resulting solutions. | Class experiments- Dissolve salts in 5cc of water. Record the solubility in a table, Carry out litmus tests. Discuss the results. | Oxides, hydroxides, of various metals, litmus papers. | K.L.B. BOOK IIPP. 94-95 |  |
| 11 | 1 | SALTS | Methods of preparing various salts. | By the end of the lesson, the learner should be able to:  To describe various methods of preparing some salts. | Experimental and descriptive treatments of preparation of salts e.g. ZnSO4, CuSO4, NaCl and Pb(NO3)2. | CuO, H2SO4, HCl, NaOH, PbCO3, dil HNO3. | K.L.B. BOOK II pp96 |  |
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| 3 | SALTS | Direct synthesis of a salts. | By the end of the lesson, the learner should be able to:  To describe direct synthesis of a salt. To write balanced equations for the reactions. | Group experiments- preparation of iron (II) sulphide by direct synthesis. Give other examples of salts prepared by direct synthesis. Students write down corresponding balanced equations. | Iron, Sulphur | K.L.B. BOOK II P. 104 |  |
| 4 | SALTS | Ionic equations. | By the end of the lesson, the learner should be able to:  To identify spectator ions in double decomposition reactions. To write ionic equations correctly. | Q/A: Ions present in given reactants. Deduce the products of double decomposition reactions. Give examples of equations. Supervised practice. | PbNO3, MgSO4 solutions. | K.L.B. BOOK II |  |
| 12 | 1 | SALTS | Effects of heat on carbonates. Effects of heat on nitrates. | By the end of the lesson, the learner should be able to:  To state effects of heat on carbonates. To predict products resulting from heating metal carbonates. To state effects of heat on nitrates. To predict products resulting from heating metal nitrates. | Group experiments- To investigate effects of heat on Na2CO3, K2CO3, CaCO3, ZnCO3, PbCO3, e.t.c. Observe various colour changes before, during and after heating. Write equations for the reactions. Group experiments- To investigate effects of heat on various metal nitrates. | Various carbonates. Common metal nitrates. | K.L.B. BOOK II PP. 108-109 |  |
| 2 | SALTS | Effects of heat on sulphates. | By the end of the lesson, the learner should be able to:  To state effects of heat on sulphates. To predict products results from heating metal sulphates. | Group experiments- To investigate effects of heat on various sulphates. Observe various colour changes before, during and after heating. Write equations for the reactions. | Common sulphates. | K.L.B. BOOK II P. 113 |  |
| 3 | SALTS | Hygroscopy, Deliquescence and Efflorescence. Uses of salts. | By the end of the lesson, the learner should be able to:  To define hygroscopic deliquescent and efflorescent salts. To give examples of hygroscopic deliquescent and efflorescent salts. To state uses of salts | Prepare a sample of various salts. Expose them to the atmosphere overnight. Students classify the salts as hygroscopic, deliquescent and / or efflorescent. Teacher elucidates uses of salts. |  | K.L.B. BOOK II P. 114 |  |
| 4 | EFFECTS OF AN ELECTRIC CURRENT ON SUBSTANCES. | Electrical conductivity. | By the end of the lesson, the learner should be able to:  To test for electrical conductivities of substances. | Group experiments- to identify conductors and non-conductors. Explain the difference in (non) conductivities. | Various solids, bulb, battery, & wires. | K.L.B. BOOK II PP. 118-119 |  |
| 13-14 | **End Term Exam and Closing** | | | | | | | |