**CHEMISTRY SCHEMES OF WORK**

**FORM TWO 2016**

**TERM I**

**REFERENCES:**

1. KLB Secondary Chemistry Form 2 Students Book (2nd Edition) KLB BK 2
2. KLB Secondary Chemistry Form 3 Students Book (2nd Edition) KLB BK 3
3. Comprehensive Secondary Chemistry BK 2 (CSC)
4. Principles of Chemistry Form 2 by Muchiri and V.W Maina (POC F2)
5. Principles of Chemistry Form 3 by Muchiri and V.W Maina (POC F3)

Compiled by Schools Net Kenya (SNK) in partnership with Jospa Publishers | P.O. Box 3029 – 00200 Nairobi |

Coordinated by KENPRO, Macjo Arcade, 4th Floor, Suite 15E, Off Magadi Road, Ongata Rongai |Tel: +254202319748 |

E-mail: infosnkenya@gmail.com | Website: [www.schoolsnetkenya.com/](http://www.schoolsnetkenya.com/)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **WK** | **LSN** | **TOPIC/S-TOPIC** | **OBJECTIVES** | **L/ACTIVITIES** | **L/T AIDS** | **REFERENCE** | **REMARKS** |
| 1 | **SCHOOL OPENING** |  |
| 2 | 1&2 | Structure of the atomand the periodic table- Structure of the atom | **By the end of the lesson, the learner** **should be able to:-**- Define atom- Name the subatomic particles and  Where found- Describe the structure of the atom and label it | - Notes taking- Discussion- Drawing and labeling  the atom | Chart of the structureof the atom | KLB BK 2 Pg 1CSC Pg 2-3POC BK2 Pg 3-6 |  |
|  | 3 | Atomic number andAtomic mass | **By the end of the lesson, the learner** **should be able to:-**- Define atomic number and atomic mass- Do simple calculations on how to find either of the given one of them | - Discussion- Notes taking- Calculation | Past questions | KLB BK 2 Pg 2-3CSC Pg 6-7POC BK2 Pg 7-9 |  |
|  | 4&5 | Isotopes | **By the end of the lesson, the learner** **should be able to:-**- Define isotopes- Name some elements that exhibit Isotopes- Name isotopes of hydrogen | - Discussion- Notes taking- Calculation | - Chalkboard- Charts | KLB BK 2 Pg 4CSC Pg 8POC BK2 Pg 10-12 |  |
| 3 | 1&2 | Energy levels andElectron arrangement | **By the end of the lesson, the learner** **should be able to:-**- Write the electronic arrangement of  The 1st 20 elements- State the importance of the number of energy levels as well as the number of  electrons in the outermost energy level | - Discussion- Notes taking- Writing of the E.C | Charts of E.C of the 1st 20 elements | KLB BK 2 Pg 4-7CSC Pg 4POC BK2 Pg 4-7 |  |
|  | 3 | Development of thePeriodic table | **By the end of the lesson, the learner** **should be able to:-**- Build up the periodic table for the 1st  20 elements based on the no. of energy levels and no. of electrons in the  outermost energy level.- Explain the position of an element in  The table | - Discussion- Notes taking- Class activity | - Manila- Plasticine- Ruler- Felt pens- Charts of the 1st 20 elements | KLB BK 2 Pg 8-9CSC BK 2 Pg 5, 11POC BK2 Pg 13-16 |  |
|  | 4&5 | Relative atomic massand isotopes | **By the end of the lesson, the learner** **should be able to:-**- Define relative atomic mass (r.a.m)- Calculate the r.a.m from isotopic composition | - Discussion- Notes taking- Calculations | Past questions | KLB BK 2 Pg 10CSC BK 2 Pg 9-11 |  |
| 4 | 1&2 | Valency and Ion FormationRadicals | **By the end of the lesson, the learner** **should be able to:-**- Define valency- Describe formation of simple ions- Define ionization energy and electron affinity- Derive the valency of an atom from  its position in the periodic table | - Discussion- Notes taking- Drawing of ions | - Charts- Manilla papers | KLB BK 2 Pg 12CSC BK 2 Pg 13-18POC BK 2 Pg 16-26 |  |
|  | 3 | Oxidation numbers | **By the end of the lesson, the learner** **should be able to:-**- Define oxidation number- State the rules of determining O.N of  atoms of elements and their ions | - Discussion- Notes taking | Charts of O.N of common elements | KLB BK 2 Pg 12CSC BK 2 Pg 16-18 |  |
|  | 4&5 | Chemical formula | **By the end of the lesson, the learner** **should be able to:-**Write chemical formula of common radicles | - Discussion- Notes taking- Writing of formulas for some compounds | - Cards- Chalkboard- Charts | KLB BK 2 Pg 16-19CSC BK 2 Pg 21 |  |
| 5 | 1&2 | Chemical formula | **By the end of the lesson, the learner** **should be able to:-**Derive the formula of simple compounds from valencies of elements and radicles | - Discussion- Notes taking- Writing of formulas for some compounds | - Cards- Charts | KLB BK 2 Pg 16-19CSC BK 2 Pg 21 |  |
|  | 3 | Chemical equations | **By the end of the lesson, the learner** **should be able to:-**Write simple balanced equations | - Discussion- Writing of simple  Chemical equations  | Balanced equations | KLB BK 2 Pg 20-22POC BK 2 Pg 30-33 |  |
|  | 4&5 | Chemical equations | **By the end of the lesson, the learner** **should be able to:-**Write simple equations which are balanced | - Notes taking- Write simple  Chemical equations  | Balanced simple equations | KLB BK 2 Pg 20-22CSC BK 2 Pg 24 |  |
| 6 | 1&2 | Chemical equations | **By the end of the lesson, the learner** **should be able to:-**Write simple balanced equations | - Discussion- Writing of balanced equations  |  | KLB BK 2 Pg 20-22CSC BK 2 Pg 24 |  |
|  | 3 | Chemical familiesPatterns and properties- Alkali metals | **By the end of the lesson, the learner** **should be able to:-**- Identify alkali metals in the periodic  table and write their electronic arrangement.- State and explain the trend in size of  the alkali metals, ion and ionization energy | - Discussion- Notes taking | - Charts- Past questions | KLB BK 2 Pg 26-27CSC BK 2 Pg 27POC BK 2 Pg 39-42 |  |
|  | 4&5 | Physical properties ofAlkali metals | State and explain trends in physical Properties of alkali metals | - Discussion- Notes taking | - Charts- Past questions | KLB BK 2 Pg 28CSC BK 2 Pg 27-28POC BK 2 Pg 43-44 |  |
| 7 | 1&2 | Chemical properties ofAlkali metals.- Uses of alkali metals | **By the end of the lesson, the learner** **should be able to:-**- State and explain trends in chemical properties of alkali metals.- State uses of alkali metals | - Discussion- Notes taking | - Past questions- Charts | KLB BK 2 Pg 29-32CSC BK 2 Pg 30-32 |  |
|  | 3 | Alkaline Earth Metals | **By the end of the lesson, the learner** **should be able to:-**- Identify A.E.M in the periodic table and write their electron arrangement- State and explain trends in size of  atoms, ions and ionization energy | - Discussion- Notes taking | - Past questions | KLB BK 2 Pg 33CSC BK 2 Pg 35-36 |  |
|  | 4&5 | Physical properties ofAlkaline earth metals | **By the end of the lesson, the learner** **should be able to:-**State and explain trends in physical properties of A.E.M. | - Discussion- Notes taking | - Charts of properties | KLB BK 2 Pg 33CSC BK 2 Pg 36-37 |  |
| 8 | 1 | Chemical properties ofAlkaline Earth Metals | **By the end of the lesson, the learner** **should be able to:-**- State and explain trends in chemical  properties of A.E.M- State uses of A.E.M | - Discussion- Notes taking | - Charts on chemical  trends- Past questions | KLB BK 2 Pg 36-39CSC BK 2 Pg 38-41POC BK 2 Pg 50-64 |  |
|  | 2 | Chemical formula ofAlkaline earth metalCompounds | **By the end of the lesson, the learner** **should be able to:-**Explain the similarities in formula ofcompounds formed by Alkali EarthMetal oxides, chlorides and hydroxides | - Discussion- Notes taking | - Charts of some AEM compounds | KLB BK 2 Pg 40CSC BK 2 Pg 41-42POC BK 2 Pg 65 |  |
|  | 3 | Halogens | **By the end of the lesson, the learner** **should be able to:-**- Identify halogens in the periodic table And write their electron arrangement- State and explain the trends in size of Their atoms, ions and electron affinity | - Discussion- Notes taking | - Charts of the periodic table | KLB BK 2 Pg 43-44CSC BK 2 Pg 43-44 |  |
|  | 4 | Physical properties ofHalogens | **By the end of the lesson, the learner** **should be able to:-**State and explain trends in physical Properties of halogens – appearance,Mp, Bp, thermal and electricalConductivity. | - Discussion- Notes taking | - Charts on physical  properties | KLB BK 2 Pg 42-44CSC BK 2 Pg 44-46POC BK 2 Pg 70 |  |
|  | 5 | Chemical properties ofHalogens- Uses of halogens | - Explain the trend in reactivity of  Halogens with metals and water- Explain similarities in formula of ions and compounds formed by halogens- State uses of halogens | - Discussion- Notes taking | - Past questions- Charts on the trend of  reactivity of halogens | KLB BK 2 Pg 45-49CSC BK 2 Pg 46-50POC BK 2 Pg 71-80 |  |
| 9 | 1&2 | Noble Gases- Uses of Noble gases | **By the end of the lesson, the learner** **should be able to:-**- Identify noble gases in the periodic  table and write their electronic  arrangement- Explain the unreactive nature of the  Noble gases in terms of electron  arrangement.- State uses of noble gases | - Discussion- Notes taking- Answering of questions and asking of questions | - Periodic table- Past questions | KLB BK 2 Pg 50-51CSC BK 2 Pg 54-56POC BK 2 Pg 81-84 |  |
|  | 3 | Properties and trendsacross a period | **By the end of the lesson, the learner** **should be able to:-**- Identify elements in period 3 and write their electron arrangement | - Discussion- Notes taking | Charts on trends acrossPeriod 3 elements | KLB BK 2 Pg 52CSC BK 2 Pg 56-57POC BK 2 Pg 85-88 |  |
|  | 4&5 | Trends in physicalProperties of elementsin period 3 | **By the end of the lesson, the learner** **should be able to:-**State and explain the trends in physical properties of the elements in period 3 –atomic size, ionization/electron affinity,Mp, Bp, thermal and electricalConductivity. | - Discussion- Notes taking | Charts on trends acrossPeriod 3 elements | KLB BK 2 Pg 52-54CSC BK 2 Pg 57-60POC BK 2 Pg 89-90 |  |
| 10 | 1&2 | Trends in chemical properties of elementsin period 3 | **By the end of the lesson, the learner** **should be able to:-**State and explain the trends in chemicalProperties of period 3 elements – Reaction with O2, H2O and dil acids | - Discussion- Teacher demonstration- Notes taking | - Past questions- Na, Mg, Al, S, H2O, Dil acids e.g. HCl | KLB BK 2 Pg 55-59CSC BK 2 Pg 60-63POC BK 2 Pg 90-95 |  |
|  | 3 | Structure and Bonding- The role and  Significance of the  outer electrons in chemical bonding- Types of bonds | **By the end of the lesson, the learner** **should be able to:-**- Define the terms bonding and  Structure- Name the three main types of bonding and related structures. | - Class Discussion- Notes taking- Asking of questions | Models of common Structures e.g. Nacl,Diamond and graphite |  |  |
|  | 4&5 | Ionic Bond | **By the end of the lesson, the learner** **should be able to:-**- Define Ionic bonding- State compounds with ionic bonding- Illustrate ionic bonding by use of dot (.) and cross (x) diagrams of atleast Three compounds. | - Class Discussion- Notes taking- Drawing dots (.) and cross (x) diagrams. | Dots (.) and crossesdiagrams on a chart |  |  |
| 11 | 1&2 | Giant Ionic Structures | - Show the bonding in an organic cpds- Draw the ionic structures of a given Compound- State characteristics of an ionic compound | - Class Discussion- Notes taking- Observing the teacher’s Illustrations | Charts of dots and Crosses diagrams |  |  |
|  | 3 | Covalent Bonding | **By the end of the lesson, the learner** **should be able to:-**- Define covalent bonding- List examples of compounds with  Covalent bonding- Use dots and crosses diagrams to  show the formation of covalent bonding. | - Class Discussion- Observation of covalent compounds models- Notes taking | - Charts of graphite of Diamond, methane,  And H2O- Models of water, CH4 | Explore BK 2 Pg 75-77KLB BK 2 Pg 55-59CSC BK 2 Pg 74-75 |  |
|  | 4&5 | Coordinate CovalentBond/Dative Bonding | **By the end of the lesson, the learner** **should be able to:-**- Define coordinate bond- Describe how the bond is formed  using dots and crosses bonds of: - Ammonium ion - Hydroxinium ion - Carbon (II) Oxide - Phosphonium ion | - Class Discussion- Notes taking- Drawing the dots and crosses diagrams of  compounds with  coordinate bond | Charts of compounds such as NH4+, H3+O | Explore BK 2 Pg 81-82KLB BK 2 Pg 55-59CSC BK 2 Pg 76-78 |  |
| 12 | 1&2 | Molecular structure and their properties | **By the end of the lesson, the learner** **should be able to:-**- Draw structures of molecular structure e.g. I2, CO2, H2O.- State and explain properties of  Molecular structures in relation to Bonding | - Class Discussion- Notes taking | Charts of iodine structure | KLB BK 2 PgCSC BK 2 Pg 76-78 Explore BK 2 Pg 88-89 |  |
|  | 3 | Giant Atomic Structures- Diamond- Graphite- Silicon (IV)oxide | **By the end of the lesson, the learner** **should be able to:-**- Define allotropy, allotropes- State the allotropes of carbon- Draw the structures of diamond and Graphite | - Observing the models  of graphite & diamond- Class Discussion- Notes taking- Drawing of the  structures of diamond and graphite | - Models of diamond and graphite- Charts showing  structure of diamond and graphite | KLB BK 2 PgCSC BK 2 Pg 79Explore BK 2 Pg 89-92 |  |
|  | 3 | Types of bonds acrossPeriod 3 elements | **By the end of the lesson, the learner** **should be able to:-**- Name the elements in period 3- Explain the nature of oxides across Period 3- Describe the reactivity of the elements of period 3 with oxygen and water- Explain the physical properties of  Oxides across period 3 | - Class Discussion- Notes taking | Charts of periodic tableshowing bond type andproperties of oxides ofperiod 3 elements | KLB BK 2 Pg 80-82CSC BK 2 Pg 82Explore BK 2 Pg 93-94 |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 4&5 | Chlorides of elements of period 3 | **By the end of the lesson, the learner** **should be able to:-**- Explain the nature of chlorides across period 3- Explain the properties of elements of  period 3 - Mp and Bp - Structure - Bond type - PH of solutions formed | - Observations- Notes taking | - Chlorides of Mg, Na, Si, and S- Litmus paper- Test tubes- water | KLB BK 2 Pg 82-84Explore BK 2 Pg 95 |  |
|  | 4&5 | Graphite | **By the end of the lesson, the learner** **should be able to:-**- Draw the structure of graphite- State properties of graphite in relation to structure and bonding- State the uses of graphite in relation to structure and bonding- Explain the structural differences  Between graphite and diamond.  | - Discussion- Notes taking- Drawing of the  structure of diamond | Charts of the structuresof diamond and graphite | KLB BK 2 Pg 77-78CSC BK 2 Pg 79 |  |
| 13 | 1&2 | Metallic Bonding | - Describe and explain how a metallic  Bonding is formed- State properties of metals | - Discussion- Notes taking- Drawing of the  structure of monovalent metal | Chart showing metallicbonding in monovalentmetal | KLB BK 2 Pg 78-81CSC BK 2 Pg 81-82 |  |
| 14 | 1-5 | **END TERM CATS****REVISION OF THE CATS** |  |
| 15 |  | **REVISION OF THE CATS****CLOSING SCHOOL FOR APRIL HOLIDAY** |  |

**CHEMISTRY SCHEMES OF WORK**

**FORM TWO 2016**

**TERM II**

**REFERENCES:**

1. KLB Secondary Chemistry Form 2 Students Book (2nd Edition) KLB BK 2
2. KLB Secondary Chemistry Form 3 Students Book (2nd Edition) KLB BK 3
3. Comprehensive Secondary Chemistry BK 2 (CSC)
4. Principles of Chemistry Form 2 by Muchiri and V.W Maina (POC F2)
5. Principles of Chemistry Form 3 by Muchiri and V.W Maina (POC F3)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **WK** | **LSN** | **TOPIC/S-TOPIC** | **OBJECTIVES** | **L/ACTIVITIES** | **L/T AIDS** | **REFERENCE** | **REMARKS** |
| 1 |  | **OPENING OF THE SCHOOL FOR TERM II****CAT 1 ADMINISTRATION** |  |
| 2 | 1&2 | SaltsType of salts | **By the end of the lesson, the learner** **should be able to:-**- Define the term salt- Name the types of salts and in each  Case give three examples | - Discussion- Notes taking | Salts-sodium chloride, NaHCO3, Mg(OH)Cl,Fe(NH4)2(SO4)2 | KLB BK 2 Pg 89-90Explore BK 2 Pg 102 |  |
|  | 3 | Solubility of salts,Oxides and hydroxides | **By the end of the lesson, the learner** **should be able to:-**Identify soluble and insoluble salts in water | - Discussion- Experiment- Notes taking- Recording observations | - Test tubes- Water- Nitrates- Chlorides- Sulphates- Carbonates | KLB BK 2 Pg 90-92CSC BK 2 Pg 91-92Explore BK 2 Pg 103-105 |  |
|  | 4&5 | Methods of preparingSaltsReaction of acid andMetal | **By the end of the lesson, the learner** **should be able to:-**- Identify soluble salts prepared by  reaction between acid and metal- Describe how to prepare salts by  Reaction of acid on a metal- Write equations of the reactions  Between acids and metals | - Notes taking- Discussion- Writing of chemical  equations - Teacher demonstration | Dil. H2SO4ZincBeakerStirring rodFilter paperSource of heatEvaporating dish | KLB BK 2 Pg 96-97Explore BK 2 Pg 106-107 |  |
| 3 | 1&2 | Preparation of a soluble salt by reactingacid and metal oxide | **By the end of the lesson, the learner** **should be able to:-**- Describe how to prepare a salt by reacting an acid and a metal oxide- Name any three salts which can be Prepared by the method- Write chemical equations for the  reactions that occur- Explain what is meant by water of  crystallization | - Teacher demonstration- Discussion- Recording of observations- Notes taking | Dil. H2SO4CuOBeakerRodFilter paper Source of heatEvaporating dish | KLB BK 2 Pg 97-98CSC BK 2 Pg 83Explore BK 2 Pg 107-108 |  |
|  | 3 | Reaction of Acid andMetal hydroxide | **By the end of the lesson, the learner** **should be able to:-**- Define the term alkali- Describe how salts are prepared by  the method- Write equations of the reactions | - Discussion- Notes taking- Teacher demonstration | PipetteBuretteConical flaskIndicatorNaOH solutionHCl solution | KLB BK 2 Pg 98-100CSC BK 2 Pg 87-88 |  |
|  | 4&5 | Preparation of a solubleSalt from a reactionBetween acid and aCarbonate | **By the end of the lesson, the learner** **should be able to:-**- Describe the preparation of a salt  using a carbonate and acid- Write equations of the reaction  Between PbCO2 and dil. HNO3 to  Form Pb(NO3)2- Name three salts prepared by the  method | - Teacher demonstration- Recording the observations- Discussion- Notes taking | Dil. HNO3PbCO3BeakerFilter paper Source of heatEvaporating dish | KLB BK 2 Pg 100-101CSC BK 2 Pg 88-89Explore BK 2 Pg 108-109 |  |
| 4 | 1&2 | Preparation of a salt from acid and a hydrogen carbonate | **By the end of the lesson, the learner** **should be able to:-**- Describe how to prepare salt from  acid and a hydrogen carbonate i.e.  HCl and NaHCO3- Write chemical equation of reaction between NaHCO3 and HCl- Name three salts which can be  Prepared using this method | - Discussion- Teacher demonstration- Notes taking | Dil. HClNaHCO3BeakerRodSource of heatEvaporating dish | CSC BK 2 Pg 89 |  |
|  | 3 | Preparation of Insoluble saltsPrecipitation method | **By the end of the lesson, the learner** **should be able to:-**- Describe precipitation reaction- Write ionic equation for the preparation of insoluble salt e.g. PbI and PbCl2 | - Class Experiment- Recording the observations- Discussion- Notes taking | Pb(NO3)2KI, NaClBeakersFilter paperFunnel | KLB BK 2 Pg 102-104CSC BK 2 Pg 89Explore BK 2 Pg 113-114 |  |
|  | 4&5 | Direct combination ofElements/Direct Synthesis | **By the end of the lesson, the learner** **should be able to:-**- Write balanced chemical equations  for the reaction between iron fillings and sulphur powder.- Identify salts which can be prepared  by direct synthesis | - Discussion- Teacher demonstration- Notes taking | - Fe fillings- Sulphur- Crucible + lid- Source of heat | KLB BK 2 Pg 101-102Explore BK 2 Pg 111-113 |  |
| 5 | 1&2 | Behaviour of salt whenexposed to the atmosphere | **By the end of the lesson, the learner** **should be able to:-**Define hydroscopy, deliquescent andefflorescent and name an example ofsalt exhibiting the behaviour  | - Discussion- Teacher demonstration- Notes taking | Watch, glass, anhydrous MgCl2,, CaCl2, KNO3, Na2CO310H2O, FeCl3 | KLB BK 2 Pg 104-105Explore BK 2 Pg 121 |  |
|  | 3 | Action of heat on salt.Action of heat on Carbonates and Hydrogen carbonates | **By the end of the lesson, the learner** **should be able to:-**Describe and explain experimental observations made when carbonates are Heated. | - Experiment - Discussion- Taking notes | Sample of ZnCO3, CaCo3, NaHCO3Ca(OH) Solution Source of heat. | KLB BK 2Pg 105-107CSC BK 2Pg 94-95Explore BK 2Pg 118. |  |
|  | 4&5 | Action of heat on Nitrates | - Describe and explain experimental observations made when nitrates are strongly heated- Identify the gases evolved from  Nitrate when heated | - Teacher demonstration- Recording of  observations- Taking notes | Samples of NaNO3,AgNO3, Zn(NO3)2Source of heatTest tubesLitmus paper | KLB BK 2 Pg 108-110CSC BK 2 Pg 96-97Explore BK 2 Pg 118-119 |  |
| 6 | 1&2 | Action of heat onSulphates | **By the end of the lesson, the learner** **should be able to:-**- Give test for the gases produced when sulphates are heated- Describe and explain experimental observations made when sulphates are heated | - Teacher demonstration- Taking observations- Taking notes | FeSO4.7H2OCuSO4.5H2OSource of heat | KLB BK 2 Pg 110-111CSC BK 2 Pg 98-99 |  |
|  | 3&4 | Action of heat on Metal hydroxides,Hydrated salts andAmmonium salts | **By the end of the lesson, the learner** **should be able to:-**- Describe & explain the experimental Observations on the action of heat on Hydrated salts- Explain why group 1 metal hydroxide are not affected by heat.- State the products when hydrated salts are heated | - Discussion- Teacher demonstration- Notes taking*© Education Plus Agencies* | NaOHMg(OH)2Cu(OH)2Source of heat | KLB BK 2 Pg 111CSC BK 2 Pg 95 |  |
|  | 5 | Uses of salts | **By the end of the lesson, the learner** **should be able to:-**state uses of some salts | - Discussion- Notes taking | - Actal tablets- Ca(OH)2 | KLB BK 2 Pg 111-112Explore BK 2 Pg 121-124 |  |
| 7 | 1 | Application of salts | **By the end of the lesson, the learner** **should be able to:-**State and explain the various applications of some salts e.g. lime in changing soil PH; as fertilizers e.t.c. | - Class Discussion- Notes taking | CaSO4CaCl2NH4NO3 | KLB BK 2 Pg 112CSC BK 2 Pg 100 |  |
|  | 2&3 | Carbon and itsCompounds- Occurrence | **By the end of the lesson, the learner** **should be able to:-**State the different forms in whichcarbon occur | - Discussion- Notes taking | Charcoal, graphiteand diamond models | KLB BK 2 Pg 115CSC BK 2 Pg 115-116POC F 2 Pg 168 |  |
|  | 4&5 | Allotropes of carbon | **By the end of the lesson, the learner** **should be able to:-**- Define allotropy and allotropes- Explain the physical properties of Carbon allotropes in terms of bonding and how their properties are related to  their uses | - Discussion- Notes taking | Models of graphite andDiamond | KLB BK 2 Pg 116CSC BK 2 Pg 115POC F 2 Pg 182-186 |  |
| 8 | 1 | Chemical properties of carbon | **By the end of the lesson, the learner** **should be able to:-**State and describe the chemical properties of carbon e.g. combustion,reducing properties e.t.c. | - Teacher demonstration- Notes taking | - Charcoal burner- Charcoal | KLB BK 2 Pg 117-120CSC BK 2 Pg 120 |  |
|  | 2&3 | Oxides of carbonCarbon (IV) OxidePreparation in the lab. | **By the end of the lesson, the learner** **should be able to:-**- Describe laboratory preparation of  CO2- Draw diagram for the preparation of the gas- Relate the method of collection of  the gas to the properties of CO2(g) | - Discussion- Notes taking | CaCO3, Dil. HClRound bottomed flaskGas jarLime water | KLB BK 2 Pg 121-124CSC BK 2 Pg 124-125POC F 2 Pg 197-198 |  |
|  | 4&5 | Physical and chemical Properties of CO2 | **By the end of the lesson, the learner** **should be able to:-**- State and explain the physical  properties of CO2- State and explain the chemical properties of the gas with limewater,  water and alkalis | - Discussion- Notes taking | CaCO3Dil. HCl | KLB BK 2 Pg 124CSC BK 2 Pg 125-128POC F 2 Pg 197-198 |  |
| 9 | 1&2 | Uses of carbon (IV)Oxide | **By the end of the lesson, the learner** **should be able to:-**State and explain the uses of carbon (IV) Oxide | - Discussion- Notes taking |  | KLB BK 2 Pg 125CSC BK 2 Pg 128-129POC F 2 Pg 199-200 |  |
|  | 3 | Carbon (II) OxidePreparation in theLaboratory | **By the end of the lesson, the learner** **should be able to:-**- Describe lab. Preparation of CO- Relate the method of collection of the  gas to its properties | - Discussion- Notes taking- Drawing of diagrams for the preparation | Charts of preparationof carbon (II) oxide | KLB BK 2 Pg 125-127CSC BK 2 Pg 131-133POC F 2 Pg 201 |  |
|  | 4&5 | Dangerous nature ofCarbon (II) Oxide | **By the end of the lesson, the learner** **should be able to:-**Explain hoe CO is a respiratory ‘poison’ when charcoal is burned inLimited supply of oxygen | - Discussion- Notes taking |  | KLB BK 2 Pg 128CSC BK 2 Pg 134-135 |  |
| 10 | 1&2 | Physical and chemicalProperties of COUses of CO | **By the end of the lesson, the learner** **should be able to:-**- State and explain the physical and chemical properties of CO- State the uses of CO | - Discussion- Notes taking |  | KLB BK 2 Pg 128-130CSC BK 2 Pg 133-135POC F 2 Pg 207 |  |
|  | 3 | Carbonates, Na2CO3and NaHCO3 | **By the end of the lesson, the learner** **should be able to:-**Describe the chemical reactions of carbonates and hydrogen carbonates | - Teacher demonstration- Discussion- Notes taking | Na2CO3, NaHCO3, Source of heat, HCl,Limewater  | KLB BK 2 Pg 130CSC BK 2 Pg 136POC F 2 Pg 207 |  |
|  | 4&5 | Production of Na2Co3From lake Magadi | **By the end of the lesson, the learner** **should be able to:-**Describe how Na2CO3 is obtained fromLake Magadi | - Discussion- Notes taking | Flow chart of the process of extraction | CSC BK 2 Pg 144-145POC F 2 Pg 217 |  |
| 11 | 1&2 | Solvay process | **By the end of the lesson, the learner** **should be able to:-**- Describe the manufacture of sodium Carbonate by the solvay process- Use simple schematic diagrams to  illustrate the process | - Discussion- Notes taking- Drawing of the  schematic diagram of solvay process | Chart of solvayprocess | KLB BK 2 Pg 135-136CSC BK 2 Pg 141-144POC F 2 Pg 214 |  |
|  | 3 | Effects of CO2 and COon the environment | **By the end of the lesson, the learner** **should be able to:-**- Explain the effect of CO2 and CO in  the atmosphere- State the effects of CO in the environment | - Discussion- Notes taking |  | KLB BK 2 Pg 137CSC BK 2 Pg 147POC F 2 Pg 220 |  |
|  | 4&5 | Carbon cycle | **By the end of the lesson, the learner** **should be able to:-**Describe the ways by which CO2 is removed from atmosphere and hoe it is added to the atmosphere | - Discussion- Notes taking- Draw the cycle | Chart of CO2 | KLB BK 2 Pg 137-138CSC BK 2 Pg 145POC F 2 Pg 154-156 |  |
| 12 | 1&2 | Nitrogen and itsCompounds- Introduction- Separation of  Nitrogen from air | **By the end of the lesson, the learner** **should be able to:-**- Describe how nitrogen is separated from the air- Name impurities found in the nitrogen Obtained by the method | - Discussion- Notes taking- Writing of equations | Flowcharts of the separation process | KLB BK 3 Pg 134-135POC F 3 Pg 154-156 |  |
|  | 3 | Large scale isolation of N2 from air | **By the end of the lesson, the learner** **should be able to:-**Describe how N2 is separated from airin large scale | - Discussion- Notes taking | Chart on isolation of N2 from air | KLB BK 3 Pg 135-136POC F 3 Pg 158-160 |  |
|  | 4&5 | Preparation of N2 inthe laboratory | **By the end of the lesson, the learner** **should be able to:-**Describe how nitrogen is prepared in the laboratory | - Discussion- Notes taking |  | KLB BK 3 Pg 136CSC BK 3 Pg 152-154POC F 3 Pg 156-158 |  |
| 13 | 1&2 | Properties of Nitrogen- Uses of Nitrogen | **By the end of the lesson, the learner** **should be able to:-**- State and explain the properties of  Nitrogen- State uses of Nitrogen | - Discussion- Notes taking | Past questions | KLB BK 3Pg 138-139POC F 3 Pg 160-163 |  |
|  | 3 | Oxides of Nitrogen- N­2O, its properties and its uses | **By the end of the lesson, the learner** **should be able to:-**- State the reagents for the preparation of N2O- State the physical and chemical Properties of N2O- State the uses of N2O | - Discussion- Notes taking- Drawing of diagram | Past questions | KLB BK 3Pg 139-141POC F 3 Pg 164-168 |  |
|  | 4&5 | Nitrogen (II) OxidePreparation in the lab.and its uses | **By the end of the lesson, the learner** **should be able to:-**- Describe the preparation of nitrogen (II) oxide in the laboratory- State the properties of nitrogen (II) Oxide- State the uses of nitrogen (II) oxide | - Discussion- Notes taking- Drawing of diagram | Chart of the preparationdiagram | KLB BK 3Pg 142-144POC F 3 Pg 168-171 |  |
| 14 |  | **REVISION OF CATS OF END TERM****CLOSING SCHOOL FOR AUGUST HOLIDAY** |  |

**CHEMISTRY SCHEMES OF WORK**

**FORM TWO 2016**

**TERM III**

**REFERENCES:**

1. KLB Secondary Chemistry Form 2 Students Book (2nd Edition) KLB BK 2
2. KLB Secondary Chemistry Form 3 Students Book (2nd Edition) KLB BK 3
3. Comprehensive Secondary Chemistry BK 2 (CSC)
4. Principles of Chemistry Form 2 by Muchiri and V.W Maina (POC F2)
5. Principles of Chemistry Form 3 by Muchiri and V.W Maina (POC F3)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **WK** | **LSN** | **TOPIC/S-TOPIC** | **OBJECTIVES** | **L/ACTIVITIES** | **L/T AIDS** | **REFERENCE** | **REMARKS** |
| 1 |  | **SCHOOL OPENING****CAT 1 ADMINISTRATION** |  |
| 2 | 1&2 | Nitrogen (IV) Oxide,Its preparation in theLaboratory, propertiesand uses | **By the end of the lesson, the learner** **should be able to:-**- Describe how NO2 is prepared in the laboratory - State and explain the physical and chemical properties of NO2- State the uses of NO2 | - Discussion- Notes taking- Drawing the preparation  diagram of NO2 | Chart of the laboratoryPreparation of NO2 | KLB BK 3Pg 144-147POC F 3 Pg 172-177 |  |
|  | 3 | Ammonia, preparationin the laboratory andproperties | **By the end of the lesson, the learner** **should be able to:-**- Describe the laboratory preparation Of ammonia- State and explain the properties of Ammonia- State the uses of ammonia | - Discussion- Notes taking- Drawing the preparation  diagram of ammonia in the lab. | Chart of the laboratorypreparation of ammonia | KLB BK 3Pg 147-152POC F 3 Pg 177-187 |  |
|  | 4&5 | Reaction of Ammoniawith metal ions | **By the end of the lesson, the learner** **should be able to:-**State observations made when NH3(aq)reacts with metal ions in a solution | - Discussion- Notes taking- Class experiment | Test tube, solution ofFe2+, Fe3+, Cu2+, Zn2+, Pb2+ | KLB BK 3Pg 152-154POC F 3 Pg 187-189 |  |
| 3 | 1&2 | Reaction of ammonia with dilute Acids andoxygen | **By the end of the lesson, the learner** **should be able to:-**- State the products formed when  Ammonia reacts with dilute acid, air- State the observations made when  Ammonia burns in air in the presence of a catalyst | - Discussion- Notes taking- Experiment | - Ammonia solution- Dil. H2SO4- Platinum wire | KLB BK 3Pg 155-159 |  |
|  | 3 | Large scale manufacture of ammonia | **By the end of the lesson, the learner** **should be able to:-**Describe how ammonia is produced inlarge scale by Haber process | - Discussion- Notes taking | Chart on large scale manufacture of ammonia | KLB BK 3Pg 159-160POC F 3 Pg 189-191 |  |
|  | 4&5 | Nitrogenous Fertilizers | **By the end of the lesson, the learner** **should be able to:-**- Name common Nitrogenous fertilizers- Calculate the percentage of Nitrogen in the nitrogenous fertilizers | - Discussion- Calculations- Notes taking | Past questions | KLB BK 3Pg 161-162POC F 3 Pg 191-194 |  |
| 4 | 1&2 | Nitric (V) Acid,Its preparation in the laboratory and Industrial preparation | - Describe the preparation of Nitric (V) Acid in the laboratory- Describe the Otswald process used in  the large scale manufacture of  nitric (V) acid | - Discussion- Notes taking- Drawing the Otswald Process flowchart | Chart on Otswaldprocess | KLB BK 3Pg 162-165POC F 3 Pg 194-198 |  |
|  | 3 | Reaction of diluteHNO3 with Metals, Carbonates, Hydroxides and oxides | **By the end of the lesson, the learner** **should be able to:-**State and explain the observations madewhen dilute HNO3 react with metals, carbonates, metal hydroxides & oxides | - Experiment- Discussion- Notes taking | Test tube, dilute HNO3Na2CO3, NaHCO3, NaOH and MgO | KLB BK 3Pg 165-169POC F 3 Pg 198-199 |  |
|  | 4&5 | Reaction of Concentrated HNO3- Uses of nitric acid  | **By the end of the lesson, the learner** **should be able to:-**- State and explain the chemical  reactions of concentrated HNO3- State the uses of HNO3 | - Discussion- Notes taking |  | KLB BK 3Pg 169-171POC F 3 Pg 200-202 |  |
| 5 | 1 | Action of heat on Nitrates- Test for nitrates | **By the end of the lesson, the learner** **should be able to:-**- Identify the products formed when  Different nitrates are heated- Describe how nitrates are tested | - Discussion- Teacher demonstration- Notes taking | Test tubes, NaNO3, Mg(NO3)2, AgNO3NH4NO3, source ofheat | KLB BK 3Pg 171-174POC F 3 Pg 203-206 |  |
|  | 2 | Pollution effects ofNitrogen compoundsin the environment | **By the end of the lesson, the learner** **should be able to:-**Explain the pollution effects of nitrogencompounds in the environment | - Discussion- Notes taking | Past questions | KLB BK 3Pg 174-175POC F 3 Pg 206-207 |  |
|  | 3 | Sulphur and its Compounds.Occurrence andExtraction of sulphur- Frasch process- Allotropes of sulphur | **By the end of the lesson, the learner** **should be able to:-**- Describe the extraction of sulphur by the frasch process- Describe the allotropes of sulphur | - Discussion- Notes taking | Chart on the fraschprocess | KLB BK 3Pg 180-184POC F 3 Pg 218-223 |  |
|  | 4 | Physical and chemical properties of sulphur- Uses of sulphur | **By the end of the lesson, the learner** **should be able to:-**- State the physical and chemical properties of sulphur- State the uses of sulphur | - Discussion- Notes taking |  | KLB BK 3Pg 184-190POC F 3 Pg 224-228 |  |
|  | 5 | SO2 Preparation in thelaboratory  | **By the end of the lesson, the learner** **should be able to:-**Describe the laboratory preparation ofSO2 | - Discussion- Notes taking | Chart on the Preparation of SO2 | KLB BK 3Pg 190-191POC F 3 Pg 228-232 |  |
| 6 | 1 | Chemical and physicalProperties of SO2 | **By the end of the lesson, the learner** **should be able to:-**State and describe the chemical andphysical properties of SO2 | - Discussion- Notes taking |  | KLB BK 3Pg 191-201POC F 3 Pg 232-238 |  |
|  | 2 | Large scale manufacture of sulphuric acid | **By the end of the lesson, the learner** **should be able to:-**Explain the preparation of sulphuricacid the contact process | - Discussion- Notes taking | Chart on the contact process | KLB BK 3Pg 201-203POC F 3 Pg 238-241 |  |
|  | 3&4 | Reaction of dilute H2SO4Reaction of concentrated H2SO4 | **By the end of the lesson, the learner** **should be able to:-**- State and explain the chemical  Properties of dilute H2SO4 and Concentrated H2SO4- Distinguish between the reaction of dilute and concentrated H2SO4 | - Discussion- Notes taking- Teacher demonstration | CuSO4.5H2O, sugar,Copper, Zn, S, C andNaCl | KLB BK 3Pg 203-210POC F 3 Pg 243-251 |  |
|  | 5 | H2S, preparation andProperties | **By the end of the lesson, the learner** **should be able to:-**Describe the preparation and state the properties of hydrogen sulphide | - Discussion- Notes taking | Chart on the Preparation of H2S | KLB BK 3Pg 210-213POC F 3 Pg 251-255 |  |
| 7 | 1 | Atmospheric pollutionby sulphur compounds | **By the end of the lesson, the learner** **should be able to:-**Explain the environmental pollutioncaused by sulphur containingcompounds | - Discussion- Notes taking | Past questions | KLB BK 3Pg 213-214POC F 3 Pg 255-256 |  |
|  | 2 | Chlorine and itsCompoundsPreparation in the laboratory and its properties | **By the end of the lesson, the learner** **should be able to:-**- Describe and explain the laboratory preparation of chlorine- State and explain the properties of chlorine | - Discussion- Notes taking | Chart on the laboratorypreparation of Cl2 | KLB BK 3Pg 219-228POC F 3 Pg 265-283 |  |
|  | 3&4 | Test for chloride ionsUses of chlorineHCl gas preparation in the laboratory and itsproperties | **By the end of the lesson, the learner** **should be able to:-**- Describe the test for Cl- ion- State the uses of chlorine- Describe the preparation of HCl- State and explain thepropertiesof HCl- Explain the effect of H2O on HCl | - Discussion- Notes taking |  | KLB BK 3Pg 229-237POC F 3 Pg 283-294 |  |
|  | 5 | Large scale manufacture of HClUses of HClEnvironmental pollution of Cl2 and its compounds | **By the end of the lesson, the learner** **should be able to:-**- Describe the industrial manufacture  Of HCl- State the uses of HCl- Explain the environmental pollution caused by Cl2 and its compounds | - Discussion- Notes taking | Chart on large scalemanufacture of HCl | KLB BK 3Pg 237-239POC F 3 Pg 294-296 |  |
| 8 | 1-5 | **END YEAR EXAMINATIONS** |  |
| 9 | 1-5 | **END YEAR EXAMINATIONS AND REVISION OF THE EXAMINATIONS****CLOSING OF THE SCHOOL FOR DECEMBER HOLIDAYS** |  |