**THE PRESIDENT’S OFFICE-**

**REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT**

**SCHEME OF WORK**

SCHOOL’S NAME:

TEACHER’S NAME: SUBJECT: **CHEMISTRY** CLASS: **FORM TWO** TERM: **1 & 2**

YEAR: **2024**

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| **COMPETENCE** | **GENERAL OBJECTIVE** | **MONTH** | **WEEK** | **MAIN TOPIC** | **SUB-TOPIC** | **PERIODS** | **TEACHING ACTIVITIES** | **LEARNING ACTIVITIES** | **T/L MATERIALS** | **REFERENCES** | **ASSESSMENT** | **REMARK S** |
| Preparing and testing properties of simple gases in the laboratory. | To explain the preparation and properties of simple gases. | **J A N U A R Y** | 2 | **OXYGEN** | **1.1Preparatio n and properties of Oxygen** | 4 | i) Guiding students on preparation of Oxygen from Hydrogen peroxide  ii) Guiding students to carry  out the characteristic test for  Oxygen gas.  iii) Leading a discussion on the physical and chemical properties of oxygen | i) Carrying out an experiment to prepare Oxygen from H2O2 or by heating KCLO3  ii) Burning metals and some non-metals to oxygen.  iii) In groups, to discuss the risks of using KMnO4 and HgO to prepare oxygen in laboratory. | H2O2, KCLO3, MnO2, flat bottomed flask, beehive shelve, delivery tube,  troughs, gas jar, water, thistle funnel, freshly prepared O2, P, litmus paper, candle, combustion spoon, Mg ribbon, C, S, Ca granules, wooden splint, KMnO4. |  | Students to prepare and collect a sample of oxygen gas in the laboratory.  to perform simple experiments on physical and chemical properties of oxygen has.  to explain properties of oxygen. |  |
| 3  &  4 | **1.2 Uses of oxygen** | 4 | i) Guiding students in groups to discuss daily life uses of oxygen.  ii) Guiding students to discuss the relationship between uses of oxygen and properties. | i) Discussing about uses of oxygen  **ii)** Discussing about the relationship between uses of oxygen and  properties. | Wall charts, flip charts, pictures showing uses and properties of oxygen in the mentioned process. | i) to list the uses of oxygen in daily life.  ii) to relate some uses of oxygen to its properties. |  |
|  |  | **F E B R U A R Y** | 1 | **HYDROGEN** | **2.1**  **Preparation and properties of Hydrogen.** | 2 | i) Demonstration on the preparation of a small sample of hydrogen using Zinc and dilute HCl  ii) Demonstrating an experiment on ‘pop’ sound test for hydrogen.  iii) Carrying out an  experiment on reduction of  CuO using H2 gas.  iv) Guiding a discussion on the physical and chemical properties of H2 gas. | i) Observing the demonstration on the preparation of sample of hydrogen using Zinc and dilute HCl.  ii) Demonstrating an  experiment on ‘pop’  sound test for hydrogen. iii) Discussing on the  physical and chemical properties of H2 gas. | Zinc granules, dil. HCl, trough, thistle funnel, beehive shelves, flat bottomed flask, test tube, wooden splints, CuO, PbO, litmus paper, CoCl, paper, combustion tubes, source of heat, anhydrous CaCl2,  wall chart showing  physical and chemical properties of H2. |  | Students to i) Explain the  preparation of a sample H2 in the laboratory.  ii) to explain properties  of H2 gas. |  |
|  | **2.2 Uses of**  **Hydrogen** | 2 | i) Leading discussion on the uses of Hydrogen industrially to manufacture margarine and ammonia.  ii) Leading discussion on the  relationship between uses and properties of hydrogen. | i) Discussing in groups the daily life uses of hydrogen.  ii) Discussing on the relationship between the uses and properties of hydrogen. | Wall chart, flip charts, pictures showing the production of ammonium fertilizers, margarine, uses of hydrogen, properties of hydrogen. | students  i) to state the uses of hydrogen gas in daily life.  ii) to relate some uses of hydrogen to its properties. |  |

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chemical properties of

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| Treating and  purifying water with environmental consideration. | To purify and  use water while conserving the environment. | **F E B R U A R Y** | 2 | **WATER** | **3.1**  **Occurrence and nature of water.** | 4 | i) Lead discussion on the  occurrence and nature of water.  ii) Guiding students to discuss and present the concept of water cycle.  iii)Guiding students to draw water cycle and discuss it. iv)Guiding students to discuss  the relationship between water cycle and environmental conservation. | i) Discussing the occurrence  and nature of water. ii) Discussing and  presenting the concept of water cycle.  iii) Drawing and discussing  water cycle. iv) Discussing the  relationship between water cycle and environmental conservation. | Wall chart showing  occurrence of water, wall chart and picture displaying water cycle. |  | students  i) to describe the occurrence and nature of water.  ii) to describe water cycle.  iii) to relate water cycle and environmental conservation. |  |
| 3 | **3.2 Properties of water** | 4 | i) Demonstrating an experiment on boiling and melting points of water.  ii) Guiding students to test for water using CoCl2 paper and anhydrous copper (II) sulphate.  iii) Guiding students to carry out reaction between water and some metals.  iv) Facilitating discussion on  physical and chemical properties of water. | i) Carrying out an experiment on boiling and melting points of water.  ii) Testing for water usingCoCl2 and anhydrous CuSO4  iii) Carrying out reactions between water and some metals.  **iv)** Discussing physical  and chemical properties of water. | Thermometer, CoCl2 paper, anhydrous CuSO4, water, Na, Ca, Mg, K, litmus  paper and wall charts showing physical  water. | students  i) to perform simple experiments on physical and chemical properties of water.  ii) to explain the properties of water. |  |
|  |  | **F E B R U A R Y** | 4 |  | **3.3 Treatment and purification of water** | 4 | i) Leading students on discussions of different methods of treating and purifying water at home.  ii) Visiting large scale water treatment plant.  iii) Leading a discussion on different chemicals used to treat large scale of water.  iv) Lead and summarize discussion on water treatment. | i) Discussing different methods of treating and purifying water at home.  ii) Purifying water after boiling by filtering by using a clean piece of cloth.  iii) Preparing a simple water filter by using sand, charcoal and gravel and use it for filtering water.  iv) Visiting and writing a report on a large scale water treatment plant.  v) Discussing different chemicals used in large scale water treatment and importance of treatment in daily life. | Water, clean piece of cloth, sand, charcoal, gravels, filter paper, boiling vessels (sufurias), water  guard pellets/tablet,  water treatment plant, wall charts showing large scale. |  | students  i) to demonstrate the process of domestic water treatment and purification.  ii) to describe the process of urban water treatment.  vi) iii) to explain the importance of water treatment and purification. |  |
| **M A R C H** | 1 | **3.4 Uses of water** | 4 | i) Lead and summarizes the discussion on the uses of water in daily life.  ii) Guiding students to dissolve different substances in water. | i) Discussing the uses of water in daily life.  ii) Dissolving different substances in water and list the dissolved ones. | Wall charts showing uses of water, table salt, sugar, toothpaste, water, kerosene, detergent soap. |  | students  i) to state the uses of water in daily life.  ii) to compare solubility of different  substances in water. |  |

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| Using fuels  efficiently and sustainably with environmental consideration. | (i) To  importance in efficiency and sustainability in using fuels.  (ii) To  promoting the use of fuels with environmental consideration. | M  A R C H | 2 | **FUELS AND**  **ENERGY** | **4.1 Fuel**  **sources** | 4 | i) Leading a discussion of  different sources of fuels found I Tanzania.  ii) Leading a discussion and  summarizing the process of making charcoal in small scale. | i) Discussing the different  sources of fuels found in  Tanzania.  ii) Discussing the process of making charcoal. | Kerosene, fire wood,  charcoal, petrol, heating gas, diesel, wall charts showing process of making charcoal. | i) Chemistry for  secondary schools, form1&2, Oxford.  ii) O-level  CHEMISTRY Form  2, BEN. | students  i) to identify different sources of fuels.  ii) to describe  methods of obtaining fuels from locally available materials. |  |
| 3 | **4.2**  **Categories of fuels** | 4 | i) Summarizing the classification of fuels according to their states.  ii) Leading students to discuss the efficiency of different kind of fuels.  iii) Supervising students to  burn different fuels and determine their calorific values. | i) Listing fuels according to their states.  ii) Discussing the efficiency of different kind of fuels.  **iii)**Burning different fuels and determine their calorific values. | Heating gas, charcoal, fire wood, kerosene, piece of wood. | students  i) to classify fuels according to their states.  ii) to classify fuels according to efficiency. |  |
| Using fuels efficiently and sustainably with environmental consideration. | (i) To explain the importance in efficiency and sustainability in using fuels  (ii) To promote  the use of fuels with environmental consideration. | **M A R C H** | 4 | **FUELS AND ENERGY** | **4.3 Uses of fuels** | 4 | i) Leading a discussion on uses of fuels in daily life and environmental effects of depending on fire wood and charcoal as sources of fuel.  ii) Leading a discussion  on deforestation, vegetation,  and alternative sources of fuels. | i) Discussing the uses of fuels in daily life and environmental effects.  ii) Discussing deforestation, vegetation, and alternative sources of fuels. | Wall charts showing uses of fuels, disadvantages of deforestation and alternative sources of fuels. |  | students  i) to list uses of fuels.  ii) to assess the environmental effect of charcoal and fire wood as sources of fuels. |  |
|  | 4 | **4.4**  **Conservation of energy** | 4 | i) Leading students to discuss the impossibility of destroying or creating energy.  ii) Guiding students to perform experiments on  the conservation of energy  from one form to another and to discuss the results obtained. | i) Discussing the impossibility of destroying or creating energy.(law of conservation of energy)  ii) Performing experiments on the conservation of energy from one form to another and to discuss the results. | Wall charts showing energy change, voltaic cell, electric  cell, bar magnets, iron fillings, water, source of heat, Cu foil, H2SO4(1M), lamp  bulb, beaker, Mg ribbon, Abrasive paper, Fe fillings. |  | students  i) to explain the law of conservation of energy.  ii) to performing experiments on the conservation of energy from one form to another. |  |
| **MIDTERM TEST** | | | | | | | | | | | | |
| **MIDTERM BREAK 31TH MARCH – 08TH APRIL 2024**  **24** | | | | | | | | | | | | |
|  |  | **A P R I**  **L** | 2 |  | **4.5**  **Renewable Energy(Bioga s)** | 4 | i) Leading a discussion on the working mechanism of a biogas plant.  ii) Assisting students to construct a model of a biogas plant.  iii) Guiding students to discuss  the applications of biogas in daily life use of biogas as environmental friendly type of fuel. | i) Discuss the working mechanism of a biogas plant.  ii) Construct a model of a biogas plant.  iii) Discuss the applications of biogas in daily life use of biogas as environmental friendly type of fuel. | Wall charts and pictures showing biogas plant, biogas plant model, water pipes, concrete, sewage, cow dung, and wall chart showing uses of biogas. |  | students  i) to explain the working mechanism of biogas plant.  ii) to construct a simple biogas plant.  iii) to explain the use of biogas with environmental conservation. |  |

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| Applying  periodicity to explain characteristic of elements. | To explain the  structure of an atom and periodic trend. |  | 3 | **ATOMIC**  **STRUCTURE** | **5.1 The Atom** | 2 | i) Leading students to discuss  Dalton’s contribution to the  structure of an atom.  ii) Leading students to discuss the modern concept of Dalton’s atomic structure. | i) Dividing a solid  substance into fine indivisible particles and discussing Dalton’s contribution to structure of an atom.  ii) Analysing the Dalton’s  atomic theory. | Pieces of chalks,  marble chips, pestle, mortar, paper, wall charts showing Dalton’s atomic theory, modern periodic table. |  | students  i) to explain Dalton’s contribution to atomic structure.  ii) Ability to explain the modern concept of Dalton’s atomic structure. |  |
|  | 3 | **5.2**  **Subatomic particles** | 2 | i) Guiding students to  identify the position of sub- atomic particles.  ii) Guiding students to discuss  the properties of each particle in an atom. | i) Identifying the position of sub-atomic particles.  **ii)** Explaining the properties of each particle in an atom. | Pictures/models of an atom, atomic diagrams. | students  i) to identify subatomic particles.  ii) to explain properties  of each sub-atomic particle. |  |
|  |  |  | 4 |  | **5.3 Electronic arrangement** | 4 | i) Guiding students to establish the maximum number of electrons in the shell.  ii) Guiding students to draw energy shell diagrams of common atoms.  iii) Summarizing energy shell diagrams. | i) Establishing the maximum number of electrons in the shell.  ii) Drawing energy shell  diagrams of common atoms. | Atomic diagrams, wall charts showing energy shell diagrams. |  | students  i) to establish the maximum number of electrons in the shells.  ii) to draw energy shell diagrams. |  |
|  |  | M  A  Y | 1 |  | **5.4 Atomic number,**  **mass number and isotopy.** | 8 | i) Guiding students to discuss the relationship between the atomic number and number of protons and the role played in relating the atomic number and protons.  ii) Guiding students on how to  obtain mass number.  iii) Leading students to discuss the concept of isotopy. | i) Discussing the  relationship between the atomic number and number of protons and the role played in relating the atomic number and protons.  ii) Obtaining mass number.  iii) Discussing the concept of isotopy. | Models/charts, pictures showing the atomic number of elements, playing cards, wall charts showing the number of protons and neutrons of elements, wall charts showing isotopes of C, Cl, O and H. |  | students  i) to relate atomic number with number of protons.  ii) to the mass number of an atom from number of protons and neutrons.  iii) to explain the concept of isotopy. |  |
|  |  |  | 1 | **PERIODIC CLASSIFICATI ON** | **6.1**  **Periodicity** | 4 | Leading a discussion on the concept of periodicity. | Explaining periodicity. | Wall chart displaying the modern periodic table. |  | to explain the concept of periodicity. |  |
|  |  | 2 |  | **6.2 General trends** | 4 | i) Guiding students to discuss the change of properties across the period.  ii)Guiding students to discuss  the change of properties down the group.  iii) Guiding students to write electronic configurations of  1st 20 elements. | i) Listing down the changes of properties across the period.  i) Listing down the changes  in properties down the group.  i) Writing the electronic configurations of 1st 20 elements. | Modern periodic table and atomic models. |  | students  i) to explain changes in properties of elements across the periods and down  the groups.  ii) to use electronic configurations |  |

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|  |  | **J**  **U N E** | 3 | **FORMULA,**  **BONDİNG AND NOMENCLAT URE** | **7.1 Valence**  **and chemical formulae** | 4 | i) Guiding students to discuss  the concept of valency. ii)Using questions and answers  in writing simple formula of binary compounds.  iii) Leading discussion on the  concept of empirical and molecular formula.  iv) Summarizing students’ activities on empirical and v molecular formula. | i) Discussing the concept of  valency.  i) Writing simple formulae of binary compounds.  i) Discussing and interpreting the information given the empirical and molecular formula.  ) Calculating the empirical and molecular formulae of various compounds. | Modern periodic  table, valence cards, Styrofoam spheres, models/wall charts/pictures showing molecular and empirical formulae. | i) Chemistry for  secondary schools, form1&2, Oxford. | students  i) to explain valency. ii)Ability to write simple  formulae of binary  compounds.  iii) to explain and calculate the empirical and molecular formulae. |  |
| **TERMINAL EXAMINATIONS** | | | | | | | | | | | | |
| **TERMINAL LEAVE 31TH MAY – 01TH JULY 2024** | | | | | | | | | | | | |
|  |  | **J U L Y** | 4 |  | **7.2 Oxidation states** | 4 | i) Leading discussion and summarizing the concepts of oxidation states.  ii) Providing activities on  valence and oxidation states. | i) Discussing the concept of oxidation states.  ii) Performing activities on valence and oxidation states. | Modern periodic table, wall charts showing oxidation state and valence. |  | Students to explain the oxidation states and to differentiate oxidation state from valence. |  |
| **A U G U S T** | 1 | **7.3 Radicals** | 4 | i) Leading questions on names and formulae of radicals.  ii) Illustrating the writing of the chemical formulae of common compounds. | i) Practicing writing and naming formulae of common radicals.  ii) Practicing writing of  chemical formulae of common compounds. | Modern periodic table, wall charts showing common radicals. |  | students  i) to explain the concept of radicals.  ii) to write chemical  formulae of compounds. |  |
|  |  | 2 |  | **7.4 Covalent bonding** | 4 | i) Guiding the discussion on the concept of covalent bonding.  ii) Guiding students to draw electron diagram to show covalent bonding in binary molecules.  iii) Guiding students to discuss the properties of covalent compounds.  iv) Guiding students to perform experiments on covalent compounds | i) Discussing the concept of covalent bonding.  ii) Drawing electron diagram to show covalent bonding in binary molecules.  iii)Discussing the properties of covalent compounds.  iv) Performing experiments on covalent compounds. | Modern periodic table, wall charts showing covalent compounds, O2, H2, kerosene, diesel, water, bulb, connecting wires, carbon electrodes and beaker. |  | Students  i) to explain the covalent bonding.  ii) to state the  properties of covalent bonding.  Students  v) To Discuss the properties of covalent compounds.  vi) To Performing experiments on covalent compounds. |  |
|  |  | A  U  G U S T | 3  &  4 |  | **7.5**  **Electrovalent bonding** | 6 | i) Leading discussion on electrovalent bonding.  ii) Guiding students to draw  electro diagrams to show electrovalent bonding.  iii) Guiding students to discuss the properties of electrovalent compounds.  iv) Guiding students to perform experiments on ionic compounds. | i) Discussing the concept of electrovalent compounds.  ii) Drawing electron  diagrams to ionic bonding.  iii)Discussing the properties of electrovalent compounds.  iv) Performing simple experiments on ionic bonding. | Modern periodic table, wall charts showing electrovalent compounds, table salt, H2O, KCl, bulb, ammeter, connecting wires, carbon electrodes, and beakers. |  | students  i) to explain the ionic bonding.  ii) to state the properties of ionic compounds. |  |
|  | **MIDTERM TEST & BREAK** | | | | | | |  |  |
|  |  |  |  | **FORM TWO NATIONAL ASSESSMENT EXAMINATIONS** | | | | | | | | |

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