

SCHEME OF WORK

Name of teacher: HASSAN YUSUFU

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Class/Stream: FORM TWO

Name of School: SHAMSIYE SECONDARY SCHOOL

Term: 1 & 2

Subject: CHEMISTRY

Competence	General objective	Month	Week	Main Topic	Sub-topic	Periods	Teaching Activities	Learning Activities	T/L Materials	References	Assessment	Remarks
Preparing and testing properties of simple gases in the lab.	To explain the preparation and properties of simple gases.	JANUARY	3rd	OXYGEN	1.1 Preparation 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 H_2O_2 or by heating $KClO_3$ ii) Burning metals and some non-metals to oxygen. iii) In groups, to discuss the risks of using $KMnO_4$ and HgO to prepare oxygen in laboratory.	H_2O_2 , $KClO_3$, MnO_2 , flat bottomed flask, beehive shelve, delivery tube, troughs, gas jar, water, thistle funnel, freshly prepared O_2 , P, litmus paper, candle, combustion spoon, Mg ribbon, C, S, Ca granules, wooden splint, $KMnO_4$.	i) Chemistry for secondary schools, form 1&2, Oxford. ii) O-level CHEMISTRY Form 2, BEN. iii) O-level CHEMISTRY Form 2 Interactive CD, BEN. iv) You tube (for video clips)	i) Ability to prepare and collect a sample of oxygen gas in the laboratory. ii) Ability to perform simple experiments on physical and chemical properties of oxygen gas. iii) Ability to explain properties of oxygen.	
			4th		1.2 Uses of oxygen	2	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) Ability to list the uses of oxygen in daily life. ii) Ability to relate some uses of oxygen to its properties.	

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			4th & 1 st				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 H ₂ gas. iv) Guiding a discussion on the physical and chemical properties of H ₂ 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 H ₂ 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 CaCl ₂ , wall chart showing physical and chemical properties of H ₂ .	i) Chemistry for secondary schools, form1&2, Oxford. ii) O-level CHEMISTRY Form 2, BEN. iii) O-level CHEMISTRY Form 2 Interactive CD, BEN. iv) You tube(for video clips)	i) Explain the preparation of a sample H ₂ in the laboratory. ii) Ability to explain properties of H ₂ gas.	
			1 st	HYDROGEN	2.2 Uses of Hydrogen	2	i) Leading discussion on the uses of Hydrogen industrially to	i) Discussing in groups the daily life uses of hydrogen.	Wall chart, flip charts, pictures showing the production of		i) Ability to state the uses of	

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						manufacture margarine and ammonia. ii) Leading discussion on the relationship between uses and properties of hydrogen.	ii) Discussing on the relationship between the uses and properties of hydrogen.	ammonium fertilizers, margarine, uses of hydrogen, properties of hydrogen.		hydrogen gas in daily life. ii) Ability to relate some uses of hydrogen to its properties.		
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Treat in glass and purify in glass water	To purify and use water while conserving the environment.	FEBRUARY	2 nd	WATER	3.1 Occurrence and nature of water.	2	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.	i) Chemistry for secondary schools, form1&2, Oxford. ii) O-level CHEMISTRY Form 2, BEN. iii) O-level CHEMISTRY Form 2 Interactive CD, BEN.	i) Ability to describe the occurrence and nature of water. ii) Ability to describe water cycle. iii) Ability to relate water cycle and environmental conservation.	
			2 nd		3.2 Properties of water	2	i) Demonstrating an experiment on boiling and melting points of water. ii) Guiding students to test for water using CoCl ₂ paper and anhydrous copper (II) sulphate. iii) Guiding students to carry out reaction	i) Carrying out an experiment on boiling and melting points of water. ii) Testing for water usingCoCl ₂ and anhydrous CuSO ₄ iii) Carrying out reactions between water and some metals.	Thermometer, CoCl ₂ paper, anhydrous CuSO ₄ , water, Na, Ca, Mg, K, litmus paper and wall charts showing physical chemical properties of water.	iv)You tube(for video clips)	i) Ability to perform simple experiments on physical and chemical properties of water. ii) Ability to explain the properties of water.	

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it h e n v i r o n m e n t a l c o n s i d e r a t i o n.							between water and some metals. iv) Facilitating discussion on physical and chemical properties of water.	iv) Discussing physical and chemical properties of water.				
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		F E B R U A R Y	3 rd		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.		i) Ability to demonstrate the process of domestic water treatment and purification. ii) Ability to describe the process of urban water treatment. vi) iii) Ability to explain the importance of water treatment and purification.	
			4 th		3.4 Uses of water	2	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.		i) Ability to state the uses of water in daily life. ii) Ability to compare solubility of different substances in water.	

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Using fuels efficiently and sustainably	(i) To importance in efficiency and sustainability in using fuels. (ii) To promote the use of fuels with environment	November	1 st	FUELS AND ENERGY	4.1 Fuel sources	4	i) Leading a discussion of different sources of fuels found in 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, form 1&2, Oxford. ii) O-level CHEMISTRY Form 2, BEN. iii) O-level CHEMISTRY Form 2	i) Ability to identify different sources of fuels. ii) Ability to describe methods of obtaining fuels from locally available materials.	
			2 nd		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.	iv) You tube (for video clips)	i) Ability to classify fuels according to their states. ii) Ability to classify fuels according to efficiency.	
			3 rd	MIDTERM TESTS								
			4 th	MIDTERM BREAK								

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Co m pe te nc e	Gener al object ive	N o n th	W e e k	Mai n Topi c	Sub-topic	P e r i o d s	Teaching Activities	Learning Activities	T/L Materials	References	Assessment	Rema

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Using fuels efficiently and sustainably with environment	(i) To explain the importance in efficiency and sustainability in using fuels (ii) To promote the use of fuels with environmental consideration.	APPRIAL	1 ST	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.		i) Ability to list uses of fuels. ii) Ability to assess the environmental effect of charcoal and fire wood as sources of fuels.	
			2 nd		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, H ₂ SO ₄ (1M), lamp bulb, beaker, Mg ribbon, Abrasive paper, Fe fillings.		i) Ability to explain the law of conservation of energy. ii) Ability to performing experiments on the conservation of energy from one form to another.	
			3 rd		4.5 Renewable Energy(Biogas)	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.		i) Ability to explain the working mechanism of biogas plant. ii) Ability to construct a simple biogas plant. iii) Ability to explain the use of biogas with environmental conservation.	

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A p p l y i n g p e r i o d i c i t y	To expla in the struc ture of an atom and perio dic		4 th	ATOMIC STRUCTU RE	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.	i) Chemistry for secondary schools, form1&2, Oxford. ii) O-level CHEMISTRY Form 2, BEN. iii) O-level CHEMISTRY Form 2 Interactive CD, BEN. iv) You tube(for video clips)	i) Ability to explain Dalton's contribution to atomic structure. ii) Ability to explain the modern concept of Dalton's atomic structure.	

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to explain characteristic of elements.	trend.	N o r t h	4 th		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.		i) Ability to identify subatomic particles. ii) Ability to explain properties of each sub-atomic particle.	
			1 st , & 2 nd		5.3 Electronic arrangement	10	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.		i) Ability to establish the maximum number of electrons in the shells. ii) Ability to draw energy shell diagrams.	
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		N A Y	2 nd		5.4 Atomic number, mass number and isotopy.	10	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.		i) Ability to relate atomic number with number of protons. ii) Ability to the mass number of an atom from number of protons and neutrons. iii) Ability to explain the concept of isotopy.	
			3 rd	TERMINAL EXAMS								
				LONG VACATION								
Co m p e t e n c e	Gener al object ive	N o r t h	W e e k	Main Topic	Sub-topi c	P e r i o d s	Teaching Activities	Learning Activities	T/L Materials	References	Assessment	Rem

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		M A Y	5 th	PERIODIC CLASSIFIC ATION	6.1 Periodicity	1	Leading a discussion on the concept of periodicity.	Explaining periodicity.	Wall chart displaying the modern periodic table.	i) Chemistry for secondary schools, form1&2, Oxford.	Ability to explain the concept of periodicity.	
			1 st		6.2 General trends	10	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 1 st 20 elements.	i) Listing down the changes of properties across the period. ii) Listing down the changes in properties down the group. ii) Writing the electronic configurations of 1 st 20 elements.	Modern periodic table and atomic models.	ii) O-level CHEMISTRY Form 2, BEN. iii) O-level CHEMISTRY Form 2 Interactive CD, BEN. iv) You tube(for video clips)	i) Ability to explain changes in properties of elements across the periods and down the groups. ii) Ability to use electronic configurations	
		J U N E	2 nd , 3 rd & 4 th	FORMULA, BONDING AND NOMENCL ATURE	7.1 Valence and chemical formulae	12	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 molecular formula.	i) Discussing the concept of valency. ii) Writing simple formulae of binary compounds. ii) Discussing and interpreting the information given the empirical and molecular formula. v) 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. ii) O-level CHEMISTRY Form 2, BEN. iii) O-level CHEMISTRY Form 2 Interactive CD, BEN. iv) YouTube(for video clips)	i) Ability to explain valency. ii) Ability to write simple formulae of binary compounds. iii) Ability to explain and calculate the empirical and molecular formulae.	

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		J U L Y	1st		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.		Ability to explain the oxidation states and to differentiate oxidation state from valence.	
			2 nd		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.		i) Ability to explain the concept of radicals. ii) Ability to write chemical formulae of compounds.	
			3 rd									
			4 th	MIDTERM BREAK								

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		SEPTEMBER	1 st & 2 nd		7.4 Covalent bonding	8	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, O ₂ , H ₂ , kerosene, diesel, water, bulb, connecting wires, carbon electrodes and beaker.		i) Ability to explain the covalent bonding. ii) Ability to state the properties of covalent bonding.	
			3 rd & 4 th		7.5 Electrovalent bonding	8	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, H ₂ O, KCl, bulb, ammeter, connecting wires, carbon electrodes, and beakers.		i) Ability to explain the ionic bonding. ii) Ability to state the properties of ionic compounds.	

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				FORM 2 NATIONAL EXAMINATIONS
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