

MINISTRY OF GENERAL EDUCATION
SCHEMES OF WORK FOR SCIENCE 5124

Subject: CHEMISTRY 5124 [SCIENCE] **Grade:** 10 **Term:** ONE **Year:** 20.... **Teacher:** ----- **periods per week:** 3

WEEK & DATE	TOPIC/SUB-TOPIC	EXPECTED LEARNING OUTCOME	METHODOLOGY	SUGGESTED EXPERIMENTS	REFERENCE
WEEK 1	Introduction to chemistry Rules and regulations.	Laboratory rules and regulations Laboratory safety and precautions.	Question & answer Discussion Demonstration Group work Illustration	Orientation the pupils to the laboratory.	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 2	Introduction to Chemistry - Branches of chemistry - Importance of chemistry	Describe Chemistry. Describe the importance of chemistry. Demonstrate an appreciation of chemistry	Question & answer Discussion Demonstration Group work Illustration	Teacher to bring plastics, ethanol, etc	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 3	The Particulate nature of matter - Matter and the Kinetic Theory	Classify the basic units of states of matter Explain the states of matter in terms of particle arrangement and movement	Question & answer Discussion Demonstration Group work Illustration	Experiment to demonstrate the change of the three state of matter.	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 4	- Change of the state of matter	Explain changes of state of matter in terms of the kinetic particle theory	Question & answer Discussion Demonstration Group work Illustration	Experiment on heating candle.	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 5	- The uses of the state of matter	Describe the absorption of heat and release of heat during changes of matter/chemical change.	Question & answer Discussion Demonstration Group work	Any experiments on the change of state of matter	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points

		Describe the uses of states of matter in everyday life	Illustration		
WEEK 6	Diffusion	Describe diffusion of particles in fluids Demonstrate the factors that affect the rate of diffusion	Question & answer Discussion Demonstration Group work Illustration	Experiment by use of perfume or smoke cell.	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 7	Experimental Techniques - Measuring of quantities	Describe how various quantities are measured Identify various measuring instruments and other apparatus used in chemistry.	Question & answer Discussion Demonstration Group work Illustration	Measure using different apparatus for measuring volume, time, temperature etc.	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 8	- Criteria of purity - Melting point	Demonstrate an appreciation of safety in the laboratory. Distinguish between a pure substance and a mixture.	Question & answer Discussion Demonstration Group work Illustration	Experiment 1. Boiling point 2. Melting point 3. Density	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 9	- Boiling point - Density -	Demonstrate how to determine purity of substances. Explain the importance of purity of substances in everyday life.	Question & answer Discussion Demonstration Group work Illustration	Experiment 1. Boiling point 2. Density	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points

WEEK 10	- Separating mixture and pure substances	Explain the importance of purity of substances in everyday life. Distinguish between physical and chemical changes Chromatograms.	Question & answer Discussion Demonstration Group work Illustration	Burning of paper and melting of ice.	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 11	- Filtration - Distillation - Chromatography - Magnetism - sublimation	Describe methods of separating mixtures Demonstrate the interpretation of simple	Question & answer Discussion Demonstration Group work Illustration	Experiments on separation technique.	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 12 AND 13	End of term test	To answer the questions	Questions		Past papers

**MINISTRY OF GENERAL EDUCATION
SCHEMES OF WORK FOR SCIENCE 5124**

Subject: CHEMISTRY 5124 [SCIENCE] **Grade:** 10 **Term:** TWO **Year:** 20..... **Teacher:** ----- **periods per week:** 3

WEEK & DATE	TOPICS/SUB-TOPICS	EXPECTED LEARNING OUTCOME	METHODOLOGY	EXPECTED EXPERIMENTS	REFERENCE
WEEK 1	Atoms, elements, molecules and compounds Atomic structure and Periodic Table	Describe the structure of an atom. Describe the relative charges and approximate relative masses of protons, neutrons and electrons.	Question & answer Discussion Demonstration Group work Illustration	Model/ chart on the structure of atoms Use of bottle top to demonstrate the arrangement of electrons in an atom	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 2	proton and nucleon number ISOTOPES use of radioactive isotopes.	Describe the proton and nucleon number. Describe the basis of the Periodic Table Describe isotopes Describe the medical and industrial use of radioactive isotopes.	Question & answer Discussion Demonstration Group work Illustration	Model/ chart on the structure of atoms Use of bottle top to demonstrate the arrangement of electrons in an atom	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 3	Classification of Substances	Describe the build-up of electrons in shells and the significance of the noble gas electronic structures Describe the significance of the noble gas electronic structures and valence electrons.	Question & answer Discussion Demonstration Group work Illustration	Model/ chart on the structure of atoms Use of bottle top to demonstrate the arrangement of electrons in an atom	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points

WEEK 4	Elements, mixtures and compounds	Describe the differences between elements, mixtures and compounds Explain the different between metals and nonmetals (in terms of atomic structure) Describe an alloy as a uniform mixture of two or more metals and/carbon.	Question & answer Discussion Demonstration Group work Illustration	Chart Mixture of sand and salt/sawdust	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 5	Bonding	Describe the formation of ions by electron loss or gain. Describe the formation of ionic bonds between metallic and non-metallic elements. Describe the formation of covalent bonds.	Question & answer Discussion Demonstration Group work Illustration	Model/ chart on the structure of atoms Use of bottle top to demonstrate ionic and covalent bonding	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 6		Describe a molecule. Describe the electronic arrangement in simple multiple covalent molecules. Describe valency of an element	Question & answer Discussion Demonstration Group work Illustration	Model/ chart on the structure of atoms Use of bottle top to demonstrate ionic and covalent bonding	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 7	Formulae of compounds	Demonstrate how to deduce from given information the valence of an element. Demonstrate the use of the valency and chemical symbols of elements to write formulae of compounds.	Question & answer Discussion Demonstration Group work Illustration	Chart on formulae of compounds of elements	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 8	Ionic and Covalent Metallic bonding	Identify the differences in properties of ionic and Covalent. Describe metallic bonding. Describe the electrical conductivity and ductility of metals.	Question & answer Discussion Demonstration Group work Illustration	Model/ chart on the structure of atoms Use of bottle top to demonstrate	Chemistry made clear Certificate chemistry GCSE chemistry

				ionic and covalent bonding	Chemistry key points
WEEK 9	Chemical formulae and equations	Demonstrate how to use relevant information in writing the chemical formulae of compounds. Demonstrate how to determine the formula of an ionic compound from the charges on the ions present and vice versa.	Question & answer Discussion Demonstration Group work Illustration	Chart on formulae of compounds and equation	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 10	The Periodic Table (Part I)	Demonstrate how to construct word equations and balanced chemical equations. Describe the Periodic Table Demonstrate how to use the periodic table to predict properties of elements. Identify the vertical columns and horizontal rows of the periodic table.	Question & answer Discussion Demonstration Group work Illustration	Chart on periodic table	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 11		Describe the relationship between valence electrons and the metallic/non metallic character. Describe the relationship of the valence electrons to the group number and the number of shells to the Period.	Question & answer Discussion Demonstration Group work Illustration	Chart on periodic table	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 12 AND 13	End of term test	To answer the questions	Questions		Past papers

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Subject: CHEMISTRY 5124 [SCIENCE] **Grade:** 10 **Term:** THREE **Year:** 20.... **Teacher:** ----- **periods per week:** 3

WEEK & DATE	TOPICS/SUB-TOPICS	EXPECTED LEARNING OUTCOME	METHODOLOGY	EXPECTED EXPERIMENTS	REFERENCE
WEEK 1	The mole concept	Describe the relative atomic mass, and relative molecular mass.	Question & answer Discussion Demonstration Group work Illustration	Charts on mole concept	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 2	Relative atomic mass	Demonstrate how to calculate relative atomic mass of an element given the % abundances of isotopes and from mass spectrum Demonstrate how to Calculate the relative molecular mass of a compound.	Question & answer Discussion Demonstration Group work Illustration	Chart on RAM	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 3	Relative molecular mass.	Describe the mole. Describe the mole in terms of Avogadro's constant.	Question & answer Discussion Demonstration Group work Illustration	Chart on RMM	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 4	Avogadro's constant	Demonstrate the calculation of the molar mass and molar volume of a gas.	Question & answer Discussion Demonstration Group work Illustration	Demonstrate on how to calculate avogadro's constant	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points

WEEK 5	molar mass and molar volume of a gas	Describe the relationship of Avogadro's law to reacting moles and volumes of gases at r t p.	Question & answer Discussion Demonstration Group work Illustration	Demonstration on how to calculate molar mass and volume	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 6	Dilution law	Demonstrate how to determine the concentration of a solution and apply dilution law.	Question & answer Discussion Demonstration Group work Illustration	Demonstration on the dilution law	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 7	Stoichiometric reaction	Demonstrate how to calculate stoichiometric reacting moles and volumes of gases and solutions at room temperature and pressure.	Question & answer Discussion Demonstration Group work Illustration	Demonstration on stoichiometric reaction	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 8	Empirical and Molecular Formulae	Demonstrate how to calculate the percentage composition of elements in a compound. Demonstrate how to determine the molecular formulae of a compound given the structural formula	Question & answer Discussion Demonstration Group work Illustration	Demonstration on empirical and molecular formulae	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 9	percentage yield and percentage purity	Demonstrate how to calculate the empirical and molecular formulae. Describe percentage yield and percentage purity.	Question & answer Discussion Demonstration Group work Illustration	Demonstration on percentage yield and percentage purity	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points

WEEK 10	Rates of chemical reactions	Demonstrate the calculation of the percentage yield in a reaction and the percentage purity of a substance Describe rate of chemical reactions.	Question & answer Discussion Demonstration Group work Illustration	Demonstrate the rate of chemical reaction calculation	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK11		Explain factors that control rates of chemical reaction. Demonstrate the interpretation of data on the rate of chemical reactions.	Question & answer Discussion Demonstration Group work Illustration	Demonstrate the data interpretation	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK12 & WEEK13	End of term test	To answer the questions	Questions		Past papers

**MINISTRY OF GENERAL EDUCATION
SCHEMES OF WORK FOR SCIENCE 5124**

Subject: CHEMISTRY 5124 [SCIENCE] **Grade:** 11 **Term:** ONE **Year:** 20..... **Teacher:** ----- **periods per week:** 3

WEEK & DATE	TOPICS/SUB-TOPICS	EXPECTED LEARNING OUTCOME	METHODOLOGY	EXPECTED EXPERIMENTS	REFERENCE
WEEK 1	Acids, Bases and Salts Characteristic properties of acids and bases	Describe acids, bases and alkalis in terms of ions they contain or produce in aqueous solution.	Question & answer Discussion Demonstration Group work Illustration	Experiments to identify acids and bases using litmus paper	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 2	weak, strong acids pH scale	Describe the meaning of weak, strong, dilute and concentrated acids and alkalis. Describe the pH scale Describe neutrality, acidity and alkalinity in terms of pH value.	Question & answer Discussion Demonstration Group work Illustration	Demonstrate the use of pH scale	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 3	pH scale properties of acids	Determine the pH value of a solution using universal indicator. Describe the Characteristic properties of acids Describe the characteristic properties of bases	Question & answer Discussion Demonstration Group work Illustration	Demonstrate using universal indicators Experiment on reaction between acid and base	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 4	properties of bases use of acids and	Describe the importance of acid- base reactions State the domestic use of acids and bases in	Question & answer Discussion	Demonstrate the neutralization of	Chemistry made clear

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	bases	everyday life	Demonstration Group work Illustration	acids	Certificate chemistry GCSE chemistry Chemistry key points
WEEK 5	Preparation of salts	Describe a salt. Classify salts according to their solubility in water.	Question & answer Discussion Demonstration Group work Illustration	Experiment to demonstrate solubility of salts	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 6	Insoluble salt soluble salts	Demonstrate the preparation of an insoluble salt. Demonstrate the preparation soluble salts by reaction of acids with bases and suitable metals and carbonates.	Question & answer Discussion Demonstration Group work Illustration	Experiment on preparation of an insoluble salt(BaSO_4)	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 7	preparation of ammonium salts	Demonstrate the preparation of ammonium, potassium and sodium salts.	Question & answer Discussion Demonstration Group work Illustration	Experiments on preparation of soluble salts	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 8	Types of oxides	Demonstrate the existence of water of crystallisation and differentiate from anhydrous salts. Classify oxides into acidic, basic, neutral and amphoteric.	Question & answer Discussion Demonstration Group work Illustration	Chart on oxide classification	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 9	Identification of	Demonstrate the use of tests to identify aqueous	Question & answer	Experiments on	Chemistry made

	ions and gases (Qualitative analysis)	cations and anions	Discussion Demonstration Group work Illustration	qualitative analysis	clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 10	Test for gases	Demonstrate the use of tests to identify gases:	Question & answer Discussion Demonstration Group work Illustration	Experiment on test for gases	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 11	Test for water	Demonstrate the chemical test for water or steam	Question & answer Discussion Demonstration Group work Illustration	Experiment on test for water	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 12 AND 13	End of term test	To answer the questions	Questions		Past papers

**MINISTRY OF GENERAL EDUCATION
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Subject: CHEMISTRY 5124 [SCIENCE] Grade: 11 Term: TWO Year: 20..... Teacher: ----- periods per week: 3

WEEK & DATE	TOPICS/SUB-TOPICS	EXPECTED LEARNING OUTCOME	METHODOLOGY	EXPECTED EXPERIMENTS	REFERENCE
WEEK 1	The Periodic Table (Part II) Group and Periodic trends	Identify trends in various groups given information about the element	Question & answer Discussion Demonstration Group work Illustration	Chart on periodic table	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 2	Group properties	Describe the physical properties of elements in Group I, II, VII and VIII.	Question & answer Discussion Demonstration Group work Illustration	Chart on periodic table and demonstration	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 3	Group properties	Describe the chemical reactivity of elements in groups I, II, and VII.	Question & answer Discussion Demonstration Group work Illustration	Chart on periodic table and demonstration	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 4	Reactions of halogens	Describe chlorine, bromine and iodine in group VII as a collection of diatomic non-metals.	Question & answer Discussion	Demonstration on reaction of	Chemistry made clear

		Discuss the reactions of group seven(VII) elements in-order to form metal halides	Demonstration Group work Illustration	halogen	Certificate chemistry GCSE chemistry Chemistry key points
WEEK 5	Properties of VII elements	Identify the trend in colour changes and physical state of matter in group VII.	Question & answer Discussion Demonstration Group work Illustration	Chart/ table on trends of halogens	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 6	Importance of halogens	Describe the importance of halogens Explain the harmful effects of halides.	Question & answer Discussion Demonstration Group work Illustration		Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 7	Transition Metals properties of transition metals	Describe transition metals. Describe general (physical and chemical) properties of transition metals.	Question & answer Discussion Demonstration Group work Illustration		Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 8	Uses of transition metals	. Identify the uses of transition metals.	Question & answer Discussion Demonstration Group work Illustration	Showing pupils on materials made from transition metals	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 9		Describe the noble gases	Question & answer	Chart on periodic	Chemistry made

	Noble Gases	Describe the reactivity of noble gases in relation to their configuration	Discussion Demonstration Group work Illustration	table	clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 10	uses of noble gases	Describe the use of the noble gases in providing an inert atmosphere,	Question & answer Discussion Demonstration Group work Illustration	Showing pupils materials where noble gases are used	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 11	REVISIONS ON THE SELECTED TOPICS OF THE TERM	REVISING ON THE SELECTED TOPICS OF THE TERM	Question & answer Discussion Demonstration Group work Illustration		Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 12 AND 13	End of term test	To answer the questions	Questions		Past papers

**MINISTRY OF GENERAL EDUCATION
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Subject: CHEMISTRY 5124 [SCIENCE] Grade: 11 Term: THREE Year: 20.... Teacher: ----- periods per week: 3

WEEK & DATE	TOPICS/SUB-TOPICS	EXPECTED LEARNING OUTCOME	METHODOLOGY	EXPECTED EXPERIMENTS	REFERENCE
WEEK 1	Metals General properties of metals	Describe the properties of metals.	Question & answer Discussion Demonstration Group work Illustration	Experiments on reaction of metals with water e.g Sodium with water Experiments on reaction of metals with acids e.g Zinc and dilute hydrochloric acid	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 2	Reactivity and Electro Chemical Series	Describe the reactions of metals. Determine the reactivity series of metals.	Question & answer Discussion Demonstration Group work Illustration	Experiments on reaction of metals with water e.g sodium and water	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 3		Explain the reactivity of aluminium due to the presence of adhesive oxide/coat.	Question & answer Discussion Demonstration Group work Illustration	Chart on reactivity series of metals	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 4		Demonstrate an order of reactivity from a set of experimental results.	Question & answer Discussion	Charts on the extraction of	Chemistry made clear Certificate chemistry

			Demonstration Group work Illustration	copper, aluminium, Iron and Zinc	GCSE chemistry Chemistry key points
WEEK 5	extraction of copper, iron aluminium and zinc	Describe the reduction of the oxides of metals. Describe the electro chemical series in relation to the tendency of a metal to form its positive ions.	Question & answer Discussion Demonstration Group work Illustration	Chart on the electrochemical series	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 6		Describe the extraction of copper, iron aluminium and zinc from their ores.	Question & answer Discussion Demonstration Group work Illustration	Charts on the extraction of zinc and iron	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 7	uses of copper, iron, zinc and aluminium	Describe the uses of copper, iron, zinc and aluminium Explain the harmful effects of some metals.	Question & answer Discussion Demonstration Group work Illustration	Charts on the extraction of copper and Aluminium	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 8	Alloys	Describe an alloy. Identify representation of alloys from diagrams of structure and differentiate from individual metals.	Question & answer Discussion Demonstration Group work Illustration	Chart on alloys	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 9	uses of alloys	Explain the advantages of using alloys over pure metals in some industrial processes. Describe common uses of alloys.	Question & answer Discussion Demonstration Group work Illustration		Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 10	Corrosion	Describe corrosion.	Question & answer Discussion Demonstration Group work	Experiment on rusting of iron	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points

			Illustration		
WEEK 11	Corrosion	Explain corrosion in relation to the reactivity of metals. Describe different methods used to prevent corrosion.	Question & answer Discussion Demonstration Group work Illustration	Experiment on rusting of iron	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 12 & WEEK 13	End of term test	To answer the questions	Questions		Past papers

MINISTRY OF GENERAL EDUCATION
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Subject: CHEMISTRY 5124 [SCIENCE] **Grade:** 12 **Term:** ONE **Year:** 20..... **Teacher:** ----- **periods per week:** 3

WEEK & DATE	TOPICS/SUB-TOPICS	EXPECTED LEARNING OUTCOME	METHODOLOGY	EXPECTED EXPERIMENTS	REFERENCE
WEEK 1	Environmental Chemistry water	Describe the formation of hydrogen. Demonstrate the identity test of hydrogen.	Question & answer Discussion Demonstration Group work Illustration	Experiment on the preparation of hydrogen Demonstrate the identity test for hydrogen	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 2	use of hydrogen water Pollutants	Explain the use of hydrogen. Explain the effects of water Pollutants.	Question & answer Discussion Demonstration Group work Illustration	Experiment on pollution by using acid and water	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 3	purification of water	Describe ways of reducing water pollution. Demonstrate the purification of water Describe the uses of water in industry and in the home.	Question & answer Discussion Demonstration Group work Illustration	Chart on purification of water/education tour to water treatment plant	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 4	Air	Describe the composition of clean air	Question & answer	Chart on the	Chemistry made

	Carbon dioxide	Describe the identification test of carbon dioxide	Discussion Demonstration Group work Illustration	composition of air	clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 5	common air pollutants	Identify common air pollutants, their sources and explain their effects. Describe the formation of acid rains and outline its adverse effects on the environment.	Question & answer Discussion Demonstration Group work Illustration	Demonstrate by use of perfume, burning of paper,	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 6	Oxygen	Describe the preparation of oxygen and identification test of oxygen	Question & answer Discussion Demonstration Group work Illustration	Experiment on preparation using potassium permanganate	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 7	uses of oxygen	Describe uses of oxygen. 1. Hospitals 2. Sea divers 3. Mountain climbers	Question & answer Discussion Demonstration Group work Illustration	Education tour	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 8	oxidation and reduction Importance of ozone.	Describe oxidation and reduction in terms of oxygen. Identify reaction involving addition of oxygen as oxidation. Describe the importance of ozone.	Question & answer Discussion Demonstration Group work Illustration		Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points

WEEK 9	Nitrogen	Describe the characteristics of nitrogen Describe the manufacture of ammonia	Question & answer Discussion Demonstration Group work Illustration	Experiment on preparation of ammonia	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 10	manufacture of ammonia	Describe the essential conditions for the manufacture of ammonia.	Question & answer Discussion Demonstration Group work Illustration	Experiment on preparation of ammonia	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 11	use of ammonia chemical fertilizer	Describe the use of ammonia in the manufacture of fertilisers. Explain the effect of chemical fertilizer on the soil.	Question & answer Discussion Demonstration Group work Illustration		Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 12 AND 13	End of term test	To answer the questions	Questions		Past papers

**MINISTRY OF GENERAL EDUCATION
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Subject: CHEMISTRY 5124 [SCIENCE] **Grade:** 12 **Term:** TWO **Year:** 20..... **Teacher:** ----- **periods per week:** 3

WEEK & DATE	TOPICS/SUB-TOPICS	EXPECTED LEARNING OUTCOME	METHODOLOGY	EXPECTED EXPERIMENTS	REFERENCE
WEEK 1	Organic Chemistry Saturated and unsaturated Hydrocarbons	Describe an organic compound. Describe the structures of the alkanes up to five carbon atoms.	Question & answer Discussion Demonstration Group work Illustration	chart	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 2	.Isomers .Fractional distillation of petroleum	Name and draw structures of isomers of butane and pentane. Describe fractional distillation of petroleum.	Question & answer Discussion Demonstration Group work Illustration	chart	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 3	Alkanes Alkenes	Describe the chemical properties of alkanes Explain that alkanes are saturated hydrocarbons. Describe the structures of alkenes up to 5 carbon atoms.	Question & answer Discussion Demonstration Group work Illustration	chart	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points

WEEK 4	Alcohols, carboxylic acids and esters	Describe the chemical properties of alkenes. Distinguish between saturated and unsaturated hydrocarbons and their similarities.	Question & answer Discussion Demonstration Group work Illustration	chart	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 5	chemical composition of an alcohol	Describe the chemical composition of an alcohol. Describe structures of primary alcohols up to five carbon Atoms.	Question & answer Discussion Demonstration Group work Illustration	chart	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 6	Formation of alcohols	Describe the formation of alcohols. Describe the chemical properties of alcohols. Describe the chemical composition of carboxylic acids and draw their structures including nomenclature	Question & answer Discussion Demonstration Group work Illustration	chart	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 7	Formation of carboxylic acids Esters	Describe the formation of carboxylic acids Describe the chemical properties of carboxylic acids. Describe the chemical composition of esters	Question & answer Discussion Demonstration Group work Illustration	chart	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 8	Synthetic Macromolecules	Describe homologous series and general characteristics of the homologues. Describe synthetic macromolecules. Describe the polymerisation.	Question & answer Discussion Demonstration Group work Illustration	chart	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key

					points
WEEK 9	. nylon and terylene .Polyamides and polyesters	Describe the formation of nylon and terylene by Condensation polymerisation. Identify differences between the structure of polyamides and polyesters. Describe typical uses of plastics and synthetic fibres.	Question & answer Discussion Demonstration Group work Illustration	Chart/ examples of synthetic macro-molecules	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 10	Natural Macromolecules	Describe carbohydrates proteins and fats (Lipids): as examples of natural polymers. Identify linkages in natural polymers.	Question & answer Discussion Demonstration Group work Illustration	Chart/examples of natural macro-molecules	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 11	.carbohydrates .proteins and .fats	Describe the differences between nylon and proteins, terylene and fats, Demonstrate the usefulness of chromatography in separating and identifying the products of the hydrolysis Demonstrate hydrolysis of fats (saponification)	Question & answer Discussion Demonstration Group work Illustration	Chart on the formation macro-molecules e.g. carbohydrates, proteins and fats	Chemistry made clear Certificate chemistry GCSE chemistry Chemistry key points
WEEK 12 AND 13	mock examination	To answer the questions	Questions		Past papers