

Curriculum

Class: Grade 10

Cycle: 4

Subject: Chemistry

Textbook: National Textbook

Learning Domains/Units	Objectives	Learning Outcomes/ Competencies
<p>The atomic structure</p> <ul style="list-style-type: none">• Electron Configuration • Periodic Trends <p>Chemical Bonding</p> <ul style="list-style-type: none">• Ionic bonding • Covalent bonding		<ul style="list-style-type: none">_ Describe the empty space structure of the atom._ List the characteristics of each fundamental particle of the atom._ Define atomic number and mass number, and describe how they apply to isotopes._ Describe the electron configurations for the atoms of any element._ Locate an element in the periodic table using the electron configuration of its atom._ Define atomic radii, ionization energy, electron affinity, and electronegativity._ Compare the periodic trends of atomic radii, ionic radii, and electronegativity, and state reasons for these variations. _ Name some ions._ Deduce the formation of ionic bond._ Identify formula units and names of ionic compounds ._ Explain the formation of a molecule._ Represent a molecule by a formula._ Describe the formation of a covalent bond._ Write Lewis structure for some molecules.

<ul style="list-style-type: none"> • Polarity of a bond and molecule <p>Compounds</p> <ul style="list-style-type: none"> • Binary Compounds • Ternary Compounds <p>Chemical Reactions</p> <ul style="list-style-type: none"> • Kinds of Chemical Reactions • Ionic and net ionic equations • Colors of ions and precipitates 		<ul style="list-style-type: none"> _ Predict the shapes of molecules or polyatomic ions using VSEPR theory (AX_2 _ AX_3 _ AX_2E _ AX_4 _ AX_3E _ AX_2E_2). _ Explain how the shapes of molecules are accounted for by hybridization theory (sp _ sp^2 _ sp^3) _ Identify the polarity of a bond and that of a molecule. <ul style="list-style-type: none"> _ Name and write formulas of binary compounds (Metal+ Hydrogen), (Metal + Non-metal), (Hydrogen+ Non-metal), (2 non-metals), and hydrocarbons. _ Name and write formulas of ternary compounds (oxyacids), (metallic hydroxides), and salts. <ul style="list-style-type: none"> _ Represent a chemical reaction by an equation. _ Discuss the different kinds of chemical reactions. _ Discuss the table of solubility of compounds. _ Discuss reactions of acids (reaction with metals, reaction with bases.) _ Discuss reactions of bases with metals. _ Discuss reactions that lead to the formation of some gases (CO_2, SO_2, H_2S, and NH_3). _ Write ionic and net ionic equations of chemical reactions. _ Memorize the colors of some ions in solution and some precipitates. _ Predict the presence of some ions based on the color of their aqueous solutions and the presence of some precipitates
--	--	---

<p>Solutions</p> <ul style="list-style-type: none"> • Concentration of solutions • Preparing solutions <p>Stoichiometry</p> <ul style="list-style-type: none"> • stoichiometric calculations 		<ul style="list-style-type: none"> _ Explain how to use significant figures and scientific notations. _ Calculate the molar concentration, mass concentration, mole fraction, and %composition by mass. _ Use calculations and laboratory procedures to prepare solutions by: <ul style="list-style-type: none"> a_ dissolving solute. b_ dilution. c_ mixing different solutions. _ Describe the importance of the mole ratio in stoichiometric calculations. _ Write a mole ratio relating two substances in a chemical equation. _ Use stoichiometric calculations in a chemical reaction (moles, mass, volume). _ Calculate the amount in moles or mass of a product, given the amounts in moles or masses in grams of two reactants, one of which is in excess.
---	--	--