

GRADE 13
CHEMISTRY
CHRISTMAS TERM PLAN
SEPTEMBER 4 - DECEMBER 19
2023-2024

SEPTEMBER

Dates	Week	Topic	Activity
Sept 11-15	Week 1	Structure and Formula (5 sessions) <ul style="list-style-type: none"> ▪ Explain the occurrence of carbon compounds with straight chains and rings. ▪ Explain the meaning of the term homologous series. ▪ Identify homologous series of organic/carbon compounds. ▪ Distinguish between empirical, structural, and molecular formulae. ▪ Write structural formulae 	Strategies: <ul style="list-style-type: none"> ● ball and stick models ● worksheets
Sept 18-22	Week 2	Structure and Formula (5 sessions) <ul style="list-style-type: none"> ▪ Apply the IUPAC rule to naming organic compounds. ▪ Define and explain structural isomerism. ▪ Give examples of structural isomerism. ▪ Explain stereoisomerism. ▪ Determine the possible isomers from given molecular formulae. 	Strategies: <ul style="list-style-type: none"> ● ball and stick models ● worksheets

		<ul style="list-style-type: none"> Determine formula from experimental data. 	
Sept 25–Sept 29	Week 3	<p>Functional group analysis and reaction mechanisms (5 sessions)</p> <ul style="list-style-type: none"> Describe selected chemical reactions of alkanes. Explain the steps involved in the mechanism of free radical substitution. Describe selected chemical reactions of alkenes. 	<p>Strategies:</p> <ul style="list-style-type: none"> Ball and stick models Worksheets

OCTOBER

Date	Week	Topics	Activity
Oct 2-6	Week 4	<p>Functional group analysis and reaction mechanisms (5 sessions)</p> <ul style="list-style-type: none"> Explain the steps involved in the mechanism of selected chemical reactions of alkenes. Describe selected chemical reactions of alcohols. 	<p>Strategies:</p> <ul style="list-style-type: none"> Chem Sketch Phet Simulation Worksheets Past Paper questions <p>Lab # 1: Alkanes and Alkenes</p> <p>Lab # 2: Alcohols</p>
Oct 9-11	Week 5	<p>Functional group analysis and reaction mechanisms (5 sessions)</p> <ul style="list-style-type: none"> Describe selected reactions of halogenoalkanes. Explain the steps involved in the mechanism of selected reactions of halogenoalkanes. 	

Oct 12-16 MID TERM BREAK			
Oct 17-20	Week 6	Functional group analysis and reaction mechanisms (5 sessions) <ul style="list-style-type: none"> ▪ Describe selected chemical reactions of carbonyl compounds. ▪ Explain the steps involved in the mechanisms of selected chemical reactions of carbonyl compounds. 	Strategies: <ul style="list-style-type: none"> ● Chem Sketch ● Phet Simulation ● Past Paper questions
1st Standardized Test Oct 23 - 27 Week 7			

NOVEMBER

Date	Week	Topics	Activity
Oct 30-Nov 3	Week 8	Functional group analysis and reaction mechanisms (5 sessions) <ul style="list-style-type: none"> ▪ Describe selected chemical reactions of carboxylic acids. ▪ Describe selected chemical reactions of esters. ▪ Carry out suitable laboratory tests for functional groups in selected carbon compounds (to be done virtually). ▪ Describe the chemical reaction of primary amines (RNH_2) and dilute acid. ▪ Describe selected chemical reactions of benzene, methylbenzene, and nitrobenzene. 	Strategies: <ul style="list-style-type: none"> ● Chem Sketch ● Phet Simulation Lab # 3: Qualitative Analysis of Organic Compounds

Nov 6-10	Week 9	<p>Functional group analysis and reaction mechanisms (4 sessions)</p> <ul style="list-style-type: none"> ▪ Explain the steps involved in the mechanism of selected reactions of benzene. ▪ Describe selected chemical reactions of phenol. ▪ Describe the formation of an azo compound. ▪ State uses of azo compounds. <p>Acidic and basic character of organic compounds (1 session)</p> <ul style="list-style-type: none"> ▪ Explain the difference in acidity of alcohols, phenols, and carboxylic acids. 	<p>Strategies:</p> <ul style="list-style-type: none"> ● Chem Sketch ● Phet Simulation <p>Worksheets: Online worksheet on acid base character and/or reactions of alcohols, carbonyl compounds for asynchronous class.</p> <p>Lab #4: Acidity of Organic Compounds</p>
Nov 13-17	Week 10	<p>Acidic and basic character of organic compounds (3 sessions)</p> <ul style="list-style-type: none"> ▪ Explain differences in basic character of aliphatic amines, amides, and aromatic amines. ▪ Explain the acid – base properties of amino acids. <p>Macromolecules (2 sessions)</p> <ul style="list-style-type: none"> ▪ Describe the characteristics of addition polymerization. ▪ Describe the characteristics of condensation polymerization. ▪ Predict types of polymers formed from given monomers. ▪ Deduce the repeat unit of a polymer. ▪ Identify proteins as naturally occurring macromolecules. 	<p>Lab #5: Saponification</p>

		<ul style="list-style-type: none"> ▪ Identify carbohydrates as naturally occurring macromolecules. ▪ Illustrate the connection between carbohydrates and their monomers. 	
Nov 20-24	Week 11	<p>Analytical chemistry (5 sessions)</p> <ul style="list-style-type: none"> ▪ Apply appropriate concepts to the analysis of scientific data. ▪ Carry out experiments to assess the degree of uncertainty in measurements associated with the use of certain common pieces of laboratory equipment (to be done virtually). ▪ Select appropriate pieces of equipment to make measurements, depending on the required degree of accuracy. 	
Nov 27-Dec 1	Week 12	<p>Analytical chemistry (5 sessions)</p> <ul style="list-style-type: none"> ▪ Explain the basic principles upon which titrimetric analysis is based. ▪ Discuss the criteria used in selecting primary standards. ▪ Use data obtained from potentiometric, thermometric and conductometric titrations methods which do not require the use of indicators. 	Lab #6: Accuracy and Precision

		<ul style="list-style-type: none"> ▪ Carry out experiments based on titrimetric analysis (to be done virtually). ▪ Perform calculations based on data obtained from titrimetric analysis. ▪ Cite examples of the use of titrimetric analysis in the quantification of various substances. 	
--	--	--	--

DECEMBER

Date	Weeks	Topics	Activity
2nd Standardized Test Dec 4-8 Week 13			
Dec 11-15	Week 14	<ul style="list-style-type: none"> ▪ Introduction to spectroscopy and ultraviolet visible analyses. (5 sessions) ▪ 	All lab sheets are due
		End of Term December 19, 2023	

END OF TERM