

Unit & Assessment Outline for Students & Parents Grades 12.

Year	2018	Semester	2	Grade	12A	Unit Value	0.5
Curriculum	ACT Chemistry/PNG Upper Secondary Chemistry						
Subject Title/s	Chemistry						
Course Name	Chemistry T						
Unit 4a:	Structure, Synthesis and Design						
Unit Code	23809						

Assessment Tasks

Week Due	Topic(s)	Type of Task	Weighting
4	Functional Groups	Practical Investigation	50%
6	Carbon Compounds	Unit Theory Test	50%
7	All Topics	Mock Exam – PNG	Formative

ACT. Learning outcomes against which the students will be reported.

Understand how the presence of functional groups and the molecular structure of organic compounds are related to their properties

Understand addition, condensation and oxidation reactions, and predict the products of these reactions

Understand how knowledge of chemical systems is used to design synthesis processes, and how data from analytical techniques provides information about chemical structure

Understand how models and theories have developed over time and the ways in which chemical knowledge interacts with social, economic, cultural and ethical considerations in a range of contexts

Use science inquiry skills to design, conduct, evaluate and communicate investigations into reactions and the identification of organic compounds, including analysis of secondary data derived from chemical analysis

Evaluate, with reference to empirical evidence, claims about organic synthesis and chemical design, and justify evaluations

Communicate, predict and explain chemical phenomena using qualitative and quantitative representations in appropriate modes and genres.

PNG. Assessment Criteria.

Demonstrate an understanding of fundamental scientific principles and models

Apply scientific thinking, motor and process skills to investigate and find solutions to problems

Communicate findings of scientific investigations in different ways

Analyse and interpret data, graphs and other forms of information relevant to topics studied

Analyse and evaluate past and present scientific developments and their impacts on human beings and the environment and on the ethical decisions made

Demonstrate an understanding of traditional knowledge and skills of chemistry practised over many years and explain their relevance today.

Summary of Content

Weeks	Content Outline	Curriculum Links
1-3	<p>Hydrocarbons:</p> <ul style="list-style-type: none"> - Homologous series; alkanes, alkenes, alkynes - Naming (IUPAC system), Properties, Reactions <p>Functional Groups:</p> <ul style="list-style-type: none"> - Alcohols, Aldehydes, Ketones, Carboxylic acids, Esters, Amines, amides, nitriles, - Naming (IUPAC system), Properties, Reactions 	<p>PNG Upper Secondary Chemistry Syllabus</p> <p>12.4: Carbon Compounds</p>
4-6	<p>Organic Materials:</p> <ul style="list-style-type: none"> - Proteins, carbohydrates and synthetic polymers, fuels, Properties, Synthesis <p>Crude Oil:</p> <ul style="list-style-type: none"> - Carbon cycle, fossil fuels (crude oil/natural gas), refining crude oil, Combustion of fossil fuels, Production of Plastics, Environmental consequences. <p>Production of Ethanol:</p> <ul style="list-style-type: none"> - Fermentation, Distillation, Properties, Harmful effects of ethanol and methanol 	<p>PNG Upper Secondary Chemistry Syllabus</p> <p>12.4: Carbon Compounds 12.5: Natural Resources and Chemical Industries in PNG</p>
7-8	<p>Production and Uses of vegetable oil:</p> <ul style="list-style-type: none"> - Extraction of oil from seeds and nuts (coconut, oil palm, peanut and karuka). - Saponification (soap production) - Biodiesel production. <p>Traditional Chemical Practices:</p> <ul style="list-style-type: none"> - Lime production, salt production, traditional dyes, traditional medicine <p>Industrial Pollution:</p> <ul style="list-style-type: none"> o Mining activities o Production and use of chemicals including plastics o Complete and incomplete combustion of fossil fuels (greenhouse effect) o Persistent organic pollutants (DDT, CFC). 	<p>PNG Upper Secondary Chemistry Syllabus</p> <p>12.4: Carbon Compounds 12.5: Natural Resources and Chemical Industries in PNG</p>
9-10	Review and Exam Coaching	
11- 13	Review, Exam Coaching & PNG National Examinations	