

RECOMMENDED LEVEL OF ATTAINMENT

18 Level 1 credits in Science including five external credits in Chemistry and 12 Level 1 credits in Maths.

INTRODUCTION

The course is based on the Material World Curriculum Level 7 syllabus and is assessed to Level 2 NCEA Achievements Standards. Practical chemistry skills are assessed along with theory.

FUTURE PATHWAYS

13CHE

CONTENT

- Inorganic chemistry, preparation and properties of some common gases. Tests for a range of anions and cations. Writing chemical formulae and equations
- Atomic structure and bonding. The structure of the Periodic Table. Ionic and covalent bonding and the shapes of molecules. Physical properties of different types of substances.

- Quantitative chemistry. Calculations involving masses and volumes. Acid-base titrations and related calculations.
- Physical chemistry. Energy changes in chemical reactions. Rates of reaction, collision theory. Equilibrium, concept of chemical equilibrium. Acid-base equilibrium.
- Oxidations-reduction; oxidising and reducing agents.
- Organic chemistry, alkanes, alkenes, alkynes, alcohols, carboxylic acids, polymers.

SKILLS

- Observation of chemical reactions.
- Report writing and organisation of information.
- Interpretation and communication of chemical information.
- Ability to work in groups in the laboratory.

NCEA STANDARDS – 12CHE

Not all standards will necessarily be assessed.

	Level	Credits	UE Rdg.	UE Wrtg.	
External					
91164 v2	2	5	no	no	Chemistry 2.4 - Demonstrate understanding of bonding, structure, properties and energy changes
91165 v2	2	4	no	no	Chemistry 2.5 - Demonstrate understanding of the properties of selected organic compounds
91166 v2	2	4	no	no	Chemistry 2.6 - Demonstrate understanding of chemical reactivity
Internal					
91161 v2	2	4	no	no	Chemistry 2.1 - Carry out quantitative analysis
91162 v2	2	3	no	no	Chemistry 2.2 - Carry out procedures to identify ions present in solution
91167 v2	2	3	no	no	Chemistry 2.7 - Demonstrate understanding of oxidation-reduction

RECOMMENDED LEVEL OF ATTAINMENT

16 Level 2 credits in Chemistry.

INTRODUCTION

The course is based on the Material World Curriculum Level 8 and is assessed to Level 3 NCEA Achievements Standards. This course is an excellent preparation for university chemistry and covers a wide range of topics and skills. More able students are expected to also sit NCEA Scholarship chemistry.

FUTURE PATHWAYS

Tertiary training and/or science and chemistry-related careers.

CONTENT

Year 12 work is extended and developed.

- Atomic structure, bonding and the periodic table.
- Aqueous solution chemistry: properties of solutions, precipitation and acid-base reactions.
- Organic substances: alkylhalides, amines, aldehydes and ketones, acid derivatives, amino acids.
- Inorganic substances: halogens and transition metals.
- Energy changes in chemical reactions: phase changes, equilibrium constant.
- Oxidation-reduction and electrochemical cells
- Spectroscopy basics.

SKILLS

- Using laboratory equipment correctly.
- Observation of chemical reactions.
- Report writing and organisation of information.
- Interpretation and communication of chemical information.

NCEA STANDARDS – 13CHE

Not all standards will necessarily be assessed.

	Level	Credits	UE Rdg.	UE Wrtg.	
External					
91390 v2	3	5	no	no	Chemistry 3.4 - Demonstrate understanding of thermochemical principles and the properties of particles and substances
91392 v2	3	5	no	no	Chemistry 3.6 - Demonstrate understanding of equilibrium principles in aqueous systems
Internal					
91388 v2	3	3	no	no	Chemistry 3.2 - Demonstrate understanding of spectroscopic data in chemistry
91389v2	3	3	no	no	Chemistry 3.3 - Demonstrate understanding of chemical processes in the world around us
91393 v2	3	3	no	no	Chemistry 3.7 - Demonstrate understanding of oxidation-reduction processes