

9. Year 12 Subjects 2011 (Science)

VCE Chemistry

Unit 3: Chemical Pathways

Areas of Study:

Area of Study 1: Chemical analysis

Area of Study 2: Organic chemistry pathways

The unit examines the scope of techniques available to the analytical chemist. A variety of analytical techniques are used to analyse products in the laboratory. In organic chemical pathways, systematic organic chemistry is investigated including the production of starting materials for particular reaction pathways.

On completion of this unit, students should be able to:

- evaluate the suitability of techniques and instruments used in chemical analyses
- identify and explain the role of functional groups in organic reactions and construct reaction pathways using organic molecules.

Assessment:

Unit 3 consists of two outcomes:

- Outcome 1 - Students should be able to evaluate the suitability of techniques and instruments used in chemical analyses.
- Outcome 2 - Students should be able to identify and explain the role of functional groups in organic reactions and construct reaction pathways using organic molecules.

Assessment Break-Down:

For Outcome 1

- An extended experimental investigation that can be drawn from either area of study 1 or area of study 2 AND
- From the area of study NOT used for the extended experimental investigation.

For Outcome 2

- A written report of one practical activity AND
- One task selected from the following:
 - ❖ a response to stimulus material in written, oral or visual format; an analysis of first or second-hand data using structured questions; a report in written, oral, multimedia or visual format related to chemical pathways.

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VCE Chemistry (Cont...)

Unit 4: Chemistry at Work

Areas of Study:

Area of Study 1: Industrial chemistry

Area of study 2: Supplying and using energy

There is a focus on the factors that affect the rate and extent of chemical reactions in this unit. Experiments are conducted to investigate the effect of temperature, concentration of reagents, pressure and catalysts on the position of equilibrium of a reaction. The use of different energy resources and the evaluation of the extent of the reserves of some of these resources is also focused on.

On completion of this unit, students should be able to:

- analyse the factors that determine the optimum conditions used in the industrial production of a selected chemical
- analyse chemical and energy transformations occurring in chemical reactions at the conclusion of their study of this unit

Assessment:

Unit 4 consists of two outcomes:

- Outcome 1 - Students should be able to analyse the factors that determine the optimum conditions used in the industrial production of the selected chemical.
- Outcome 2 - Students should be able to analyse chemical and energy transformations occurring in chemical reactions.

Assessment Break-Down:

For Outcome 1

- A summary report including annotations of three practical activities drawn from either area of study 1 and area of study 2 AND
- From the area of study NOT used for the summary report

For Outcome 2

- A written report of one practical activity AND
- One task selected from the following:
 - ❖ a response to stimulus material in written, oral or visual format; an analysis of first or second-hand data using; structured questions; a report in written, oral, multimedia or visual format related to chemistry at work.

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VCE Chemistry (Cont...)

Assessment – Units 3 and 4

The student's level of achievement for Units 3 and 4 will be determined by school-assessed coursework, a mid-year and an end-of-year examination of one and half hour duration.

- Unit 3 School-Assessed Coursework: 17%
- Mid-year Examination Unit 3 33%
- Unit 4 School-Assessed Coursework: 17%
- End-of-year Examination Unit 4 33%

Other Information

- Chemistry has a mid-year Exam AND an end of year Exam. A Practice Exam for the June Exam is held towards the end of May. Other practice exams are also held during Semester Two. It is important that students take every opportunity to ready themselves for these examinations.

Entry – Units 3 and 4

Students are expected to have completed Unit 1 and or 2 Chemistry prior to attempting to complete the Unit 3 and 4 progression. Students must complete Unit 3 before completing Unit 4.