



Chemistry

STAGE 6 HSC ~ COURSE OUTLINE

Chemistry is the study of the physical and chemical properties of matter, with a focus on substances and their interactions. Chemistry attempts to provide chemical explanations and to predict events at the atomic and molecular level.

The *HSC course* builds on the concepts developed in the Preliminary course, expanding on areas such as the search for new sources of traditional materials, the design and production of new materials, the management and monitoring of chemicals that have been developed and/or released as a result of human technological activity and the way in which environmental problems could be reversed or minimised. The options cover a variety of interest areas and draw on the increased information and understanding provided by improved technology to examine areas of current research.

TOPICS COVERED

HSC Course

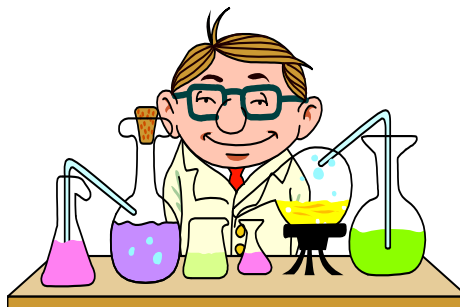
Chemistry Skills Module 9.1

Core Modules

- Production of Materials
- The Acidic Environment
- Chemical Monitoring and Management

One Option from the following modules

- Industrial Chemistry
- Shipwrecks, corrosion and conservation
- The Biochemistry of movement
- The chemistry of Art
- Forensic chemistry



COURSE REQUIREMENTS

Each module specifies content which provides opportunities for students to achieve the Chemistry skill outcomes. Chemistry modules 9.1 (HSC) provide the skills content that must be addressed within and across each course. Teachers should provide opportunities based on the module content to develop the full range of skills content identified in Chemistry skills module 9.1.

Students will complete a minimum of 80 indicative hours of practical experiences across Preliminary and HSC course time with no less than 35 hours in the HSC course.

SYLLABUS OUTCOMES

- H1** Evaluates how major advances in scientific understanding and technology have changed the direction or nature of scientific thinking.
- H2** Analyses the ways in which models, theories and laws in chemistry have been tested and validated.

- H3** Assesses the impact of particular advances in chemistry on the development of technologies.
- H4** Assesses the impacts of applications of chemistry on society and the environment.
- H5** Describes possible future directions of chemical research.
- H6** Explains reactions between elements and compounds in terms of atomic structures and periodicity.
- H7** Describes the chemical basis of energy transformations in chemical reactions.
- H8** Assesses the range of factors which influence the type and rate of chemical reactions.
- H9** Describes and predicts reactions involving carbon compounds.
- H10** Analyses stoichiometric relationships.
- H11** Justifies the appropriateness of a particular investigation plan.
- H12** Evaluates ways in which accuracy and reliability could be improved in investigations.
- H13** Uses terminology and reporting styles appropriately and successfully to communicate information and understanding.
- H14** Assesses the validity of conclusions from gathered data and information.
- H15** Explains why an investigation is best undertaken individually or by a team.
- H16** Justifies positive values about and attitude towards both the living and non-living components of the environment, ethical behaviour and a desire for critical evaluation of the consequences of the applications of science.

BOSTES Assessment Information

External examination	Marks	Internal assessment	Weighting
<i>Section I – Core</i> Part A Objective response questions	20	A. Knowledge and understanding of: • the history, nature, and practice of chemistry, applications and uses of chemistry and their implications for society and the environment, and current issues, research and developments in chemistry • atomic structure and periodic table, energy, chemical reactions, carbon chemistry and stoichiometry	40
Part B Short-answer questions	55		
<i>Section II – Options</i> Candidates answer one question on the option they have studied	25	B. Skills in: • planning and conducting firsthand investigations • gathering and processing firsthand data • gathering and processing relevant information from secondary sources	30
		C. Skills in: • communicating information and understanding • developing scientific thinking and problem-solving techniques • working individually and in teams	30
TOTAL MARKS	100	TOTAL MARKS	100

School Based Evidence of Learning ~ Formal Task Schedule

Task No.	Targeted Outcomes	Learning Context	Task	Date Due	Weighting			Marks
					A	B	C	
1	H 11-15	Production of Materials	Open Ended Investigation	Tm 4 Wk 6	10%	10%	5%	25%
2	H 1, 3, 4, 11-15	Forensic Chemistry	Fieldwork / Report	Tm 1 Wk 9	10%	10%	5%	25%
3	H 8, 10, 12, 14	Acidic Environments	Practical	T2 Wk 7	5%	5%	15%	25%
4	H 1-10, 12, 16	All Topics	Trial HSC Examination	Tm2 Wk 9/10	15%	5%	5%	25%
TOTAL					40%	30%	30%	100%