



SCIENCE

BIOLOGY

OUTCOMES

A student:

Questioning and predicting

BIO11/12-1 develops and evaluates questions and hypotheses for scientific investigation Planning investigations

Planning investigations

BIO11/12-2 designs and evaluates investigations in order to obtain primary and secondary data and information

Conducting investigations

BIO11/12-3 conducts investigations to collect valid and reliable primary and secondary data and information

Processing data and information

BIO11/12-4 selects and processes appropriate qualitative and quantitative data and information using a range of appropriate media

Analysing data and information

BIO11/12-5 analyses and evaluates primary and secondary data and information

Problem solving

BIO11/12-6 solves scientific problems using primary and secondary data, critical thinking skills and scientific processes

Communicating

BIO11/12-7 communicates scientific understanding using suitable language and terminology for a specific audience or purpose

BIO12-12 explains the structures of DNA and analyses the mechanisms of inheritance and how processes of reproduction ensure continuity of species

BIO12-13 explains natural genetic change and the use of genetic technologies to induce genetic change

BIO12-14 analyses infectious disease in terms of cause, transmission, management and the organism's response, including the human immune system

BIO12-15 explains non-infectious disease and disorders and a range of technologies and methods used to assist, control, prevent and treat non-infectious disease

SCIENCE

BIOLOGY (continued)

Components (Syllabus)	Weighting % (Syllabus)	Task 1	Task 2	Task 3	Task 4
		Processing and Modelling	Practical and Processing	Depth Study	Trial HSC Exam
		Term 4, Week 7, 2022	Term 1, Week 11 , 2023	Term 2, Week 6, 2023	Term 3, Exam period, 2023
	Outcomes	BIO 11/12-3 BIO 11/12-4 BIO 11/12-5 BIO 11/12-6 BIO 11/12-7 BIO 12-12	BIO 11/12-1 BIO 11/12-4 BIO 11/12-6 BIO 11/12-7 BIO 12-14	BIO 11/12-1 BIO 11/12-2 BIO 11/12-3 BIO 12-13	BIO 11/12-1 to 7 BIO 12-12 BIO 12-13 BIO1 2-14 BIO 12-15
Knowledge and Understanding	40	5	5	10	20
Skills in working scientifically	60	15	15	20	10
TOTAL %	100	20	20	30	30

CHEMISTRY

OUTCOMES

A student:

Questioning and predicting

CH11/12-1 develops and evaluates questions and hypotheses for scientific investigation

Planning investigations

CH11/12-2 designs and evaluates investigations in order to obtain primary and secondary data and information

Conducting investigations

CH11/12-3 conducts investigations to collect valid and reliable primary and secondary data and information

Processing data and information

CH11/12-4 selects and processes appropriate qualitative and quantitative data and information using a range of appropriate media

Analysing data and information

CH11/12-5 analyses and evaluates primary and secondary data and information

Problem solving

CH11/12-6 solves scientific problems using primary and secondary data, critical thinking skills and scientific processes

Communicating

CH11/12-7 communicates scientific understanding using suitable language and terminology for a specific audience or purpose

CH12-12 explains the characteristics of equilibrium systems, and the factors that affect these systems

CH12-13 describes, explains and quantitatively analyses acids and bases using contemporary models

CH12-14 analyses the structure of, and predicts reactions involving, carbon compounds

CH12-15 describes and evaluates chemical systems used to design and analyse chemical processes

CHEMISTRY (continued)

Components (Syllabus)	Weighting % (Syllabus)	Task 1	Task 2	Task3	Task 4
		Research / Processing Information	Practical and Analysis Processes	Depth study	Trial HSC Exam
		Term 4, Week 6, 2022	Term 1, Week 9 , 2023	Term 2, Week 9, 2023	Term 3, Exam period, 2023
	Outcomes	CH11/12-1 CH11/12-4 CH11/12-5 CH11/12-6 CH11/12-7 CH12-12 CH12-13	CH11/12-2 CH11/12-3 CH11/12-5 CH12-13 CH 12-12	CH11/12-1 CH11/12-2 CH11/12-3 CH11/12-4 CH11/12-7 CH12-14 CH12-15	CH 11/12-1 to 7 CH 12-12 CH 12-13 CH 12-14 CH 12-15
Knowledge and Understanding	40	5	5	10	20
Skills in working scientifically	60	15	15	20	10
TOTAL %	100	20	20	30	30

SCIENCE

EARTH AND ENVIRONMENTAL SCIENCE

OUTCOMES

A student:

Questioning and predicting

EES11/12-1 develops and evaluates questions and hypotheses for scientific investigation Planning investigations

EES11/12-2 designs and evaluates investigations in order to obtain primary and secondary data and information

Conducting investigations

EES11/12-3 conducts investigations to collect valid and reliable primary and secondary data and information

Processing data and information

EES11/12-4 selects and processes appropriate qualitative and quantitative data and information using a range of appropriate media

Analysing data and information

EES11/12-5 analyses and evaluates primary and secondary data and information Problem solving

EES11/12-6 solves scientific problems using primary and secondary data, critical thinking skills and scientific processes

Communicating

EES11/12-7 communicates scientific understanding using suitable language and terminology for a specific audience or purpose

Year 12 course knowledge and understanding outcomes , a student:

EES12-12 describes and evaluates the models that show the structure and development of the Earth over its history

EES12-13 describes and evaluates the causes of the Earth's hazards and the ways in which they affect, and are affected by, the Earth's systems

EES12-14 analyses the natural processes and human influences on the Earth, including the scientific evidence for changes in climate

EES12-15 describes and assesses renewable and non-renewable Earth resources and how their extraction, use, consumption and disposal affect the Earth's systems

EARTH AND ENVIRONMENTAL SCIENCE (continued)

Components (Syllabus)	Weighting % (Syllabus)	Task 1	Task 2	Task 3	Task 4
		Practical, research and data analysis	Practical and Processes modelling and data analysis	Depth study	Trial HSC Exam
		Term 4, Week 9, 2022	Term 1, Week 11 , 2023	Term 2, Week 7, 2023	Term 3, exam period, 2023
Outcomes		EES 11/12-1 EES 11/12-2 EES 11/12-3 EES 11/12-5 EES 11/12-6 EES 12-12	EES 11/12-1 EES 11/12-5 EES 11/12-7 EES 12-13	EES 11/12-1 EES 11/12-2 EES 11/12-3 EES 11/12-4 EES 11/12-5 EES 11/12-7 EES 12-14	EES 11/12-1 to 7 EES 12-12 EES 12-13 EE 1 2-14 EE 12-15
Knowledge and Understanding	40	5	5	10	20
Skills in working scientifically	60	15	15	20	10
TOTAL %	100	20	20	30	30

SCIENCE

INVESTIGATING SCIENCE

Questioning and predicting

INS11/12-1 develops and evaluates questions and hypotheses for scientific investigation

Planning investigations

INS11/12-2 designs and evaluates investigations in order to obtain primary and secondary data and information

Conducting investigations

INS11/12-3 conducts investigations to collect valid and reliable primary and secondary data and information

Processing data and information

INS11/12-4 selects and processes appropriate qualitative and quantitative data and information using a range of appropriate media

Analysing data and information

INS11/12-5 analyses and evaluates primary and secondary data and information

Problem solving

INS11/12-6 solves scientific problems using primary and secondary data, critical thinking skills and scientific processes

Communicating

INS11/12-7 communicates scientific understanding using suitable language and terminology for a specific audience or purpose

INS12-12 develops and evaluates the process of undertaking scientific investigations

INS12-13 describes and explains how science drives the development of technologies

INS12-14 uses evidence-based analysis in a scientific investigation to support or refute a hypothesis

INS12-15 evaluates the implications of ethical, social, economic and political influences on science

SCIENCE

INVESTIGATING SCIENCE (continued)

Components (Syllabus)	Weighting % (Syllabus)	Task 1	Task 2	Task 3	Task 4
		Practical, research and data analysis	Practical and Processes modelling and data analysis	Depth study	Trial HSC Exam
		Term 4, Week 10, 2022	Term 1, Week 10, 2023	Term 2, Week 4, 2023	Term 3, exam period 2023
	Outcomes	INS 11/12-1 INS 11/12-2 INS 11/12-3 INS 11/12-5 INS 11/12-6 INS 12-12	INS 11/12-1 INS 11/12-5 INS 11/12-7 INS 12-13	INS 11/12-1 INS 11/12-2 INS 11/12-3 INS 11/12-4 INS 11/12-5 INS 11/12-7 INS 12-14	INS 11/12-1 to 7 INS 12-12 INS 12-13 INS 12-14 INS 12-15
Knowledge and Understanding	40	5	5	10	20
Skills in working scientifically	60	15	15	20	10
TOTAL %	100	20	20	30	30

SCIENCE

PHYSICS

OUTCOMES

A student:

Questioning and predicting

PH11/12-1 develops and evaluates questions and hypotheses for scientific investigation

Planning investigations

PH11/12-2 designs and evaluates investigations in order to obtain primary and secondary data and information

Conducting investigations

PH11/12-3 conducts investigations to collect valid and reliable primary and secondary data and information

Processing data and information

PH11/12-4 selects and processes appropriate qualitative and quantitative data and information using a range of appropriate media

Analysing data and information

PH11/12-5 analyses and evaluates primary and secondary data and information

Problem solving

PH11/12-6 solves scientific problems using primary and secondary data, critical thinking skills and scientific processes

Communicating

PH11/12-7 communicates scientific understanding using suitable language and terminology for a specific audience or purpose

PH12-12 describes and analyses qualitatively and quantitatively circular motion and motion in a gravitational field, in particular, the projectile motion of particles

PH12-13 explains and analyses the electric and magnetic interactions due to charged particles and currents and evaluates their effect both qualitatively and quantitatively

PH12-14 describes and analyses evidence for the properties of light and evaluates the implications of this evidence for modern theories of physics in the contemporary world

PH12-15 explains and analyses the evidence supporting the relationship between astronomical events and the nucleosynthesis of atoms and relates these to the development of the current model of the atom

PHYSICS (continued)

Components (Syllabus)	Weighting % (Syllabus)	Task 1	Task 2	Task 3	Task 4
		Practical and analysis	Practical and Processes modelling	Depth study	Trial HSC Exam
		Term 4, Week 8, 2022	Term 1, Week 7 , 2023	Term 2, Week 5 2023	Term 3, exam period, 2023
Outcomes		PH 11/12-2 PH 11/12-3 PH 11/12-5 PH 11/12-6 PH 12-12	PH 11/12-1 PH 11/12-5 PH 11/12- 7 PH 12-13 PH 12-2 PH 12-3	PH 11/12-1 PH 11/12-2 PH 11/12-3 PH 11/12-4 PH 11/12-5 PH 11/12-7 PH 12-14 PH 12-6	PH 11/12-1 to 7 PH 12-12 PH 12-13 PH 1 2-14 PH 12-15
Knowledge and Understanding	40	5	5	10	15
Skills in working scientifically	60	15	15	20	15
TOTAL %	100	20	20	30	30

SCIENCE

SCIENCE EXTENSION

OUTCOMES

A student:

SE-1 refines and applies the Working Scientifically processes in relation to scientific research

SE-2 analyses historic and cultural observations, ethical considerations and philosophical arguments involved in the development of scientific knowledge and scientific methods of inquiry

SE-3 interrogates relevant and valid peer-reviewed scientific research to develop a scientific research question, hypothesis, proposal and plan

SE-4 uses statistical applications, mathematical processes and/or modelling to gather, process, analyse and represent reliable and valid datasets

SE-5 analyses and applies the processes used in reliable and valid scientific research to solve complex scientific problems and inform further research

SE-6 analyses and reports on a contemporary issue or an application of science informed by either primary or secondary-sourced data, or both, in relation to relevant publicly available data sets

SE-7 communicates analysis of an argument or conclusion incorporating appropriate scientific language and referencing techniques in a scientific report

Components (Syllabus)	Weighting % (Syllabus)	Task 1	Task 2	Task3
		Section 1 of the Scientific Research Portfolio	Section 2 of the Scientific Research Portfolio	Trial HSC Exam
	Outcomes	Term 1, Week 2, 2023	Term 2, Week 7, 2023	Term 3, exam period, 2023
		SE-1 ,SE-2, SE-3	SE-1, SE-2, SE-3, SE-4 SE-5, SE-6, SE-7	SE-1, SE-2, SE-3, SE-4 SE-5, SE-6, SE-7
Communicating scientifically	30	10	10	10
Gathering, recording, analysing and evaluating data	30	10	10	10
Application of scientific research skills	40	10	20	10
TOTAL %	100	30	40	30