

# Biology

## General senior subject

General

Biology provides opportunities for students to engage with living systems. In Unit 1, students develop their understanding of cells and multicellular organisms. In Unit 2, they engage with the concept of maintaining the internal environment. In Unit 3, students study biodiversity and the interconnectedness of life. This knowledge is linked in Unit 4 with the concepts of heredity and the continuity of life.

Students will learn valuable skills required for the scientific investigation of questions. In addition, they will become citizens who are better informed about the world around them and who have the critical skills to evaluate and make evidence-based decisions about current scientific issues.

Biology aims to develop students':

- sense of wonder and curiosity about life
  - respect for all living things and the environment
  - understanding of how biological systems interact and are interrelated, the flow of matter and energy through and between these systems, and the processes by which they persist and change
  - understanding of major biological concepts, theories and models related to biological systems at all scales, from subcellular processes to ecosystem dynamics
  - appreciation of how biological knowledge has developed over time and continues to develop; how scientists use biology in a wide range of applications; and how biological knowledge influences society in local, regional and global contexts
- ability to plan and carry out fieldwork, laboratory and other research investigations, including the collection and analysis of qualitative and quantitative data and the interpretation of evidence
  - ability to use sound, evidence-based arguments creatively and analytically when evaluating claims and applying biological knowledge
  - ability to communicate biological understanding, findings, arguments and conclusions using appropriate representations, modes and genres.

## Pathways

A course of study in Biology can establish a basis for further education and employment in the fields of medicine, forensics, veterinary, food and marine sciences, agriculture, biotechnology, environmental rehabilitation, biosecurity, quarantine, conservation and sustainability.

## Objectives

By the conclusion of the course of study, students will:

- describe ideas and findings
- apply understanding
- analyse data
- interpret evidence
- evaluate conclusions, claims and processes
- investigate phenomena.

## Structure

Unit 1	Unit 2	Unit 3	Unit 4
<b>Cells and multicellular organisms</b> <ul style="list-style-type: none"> <li>• Cells as the basis of life</li> <li>• Exchange of nutrients and wastes</li> <li>• Cellular energy, gas exchange and plant physiology</li> </ul>	<b>Maintaining the internal environment</b> <ul style="list-style-type: none"> <li>• Homeostasis — thermoregulation and osmoregulation</li> <li>• Infectious disease and epidemiology</li> </ul>	<b>Biodiversity and the interconnectedness of life</b> <ul style="list-style-type: none"> <li>• Describing biodiversity and populations</li> <li>• Functioning ecosystems and succession</li> </ul>	<b>Heredity and continuity of life</b> <ul style="list-style-type: none"> <li>• Genetics and heredity</li> <li>• Continuity of life on Earth</li> </ul>

## Assessment

Schools devise assessments in Units 1 and 2 to suit their local context.

In Units 3 and 4 students complete *four* summative assessments. The results from each of the assessments are added together to provide a subject score out of 100. Students will also receive an overall subject result (A–E).

### Summative assessments

Unit 3		Unit 4	
Summative internal assessment 1 (IA1): • Data test	10%	Summative internal assessment 3 (IA3): • Research investigation	20%
Summative internal assessment 2 (IA2): • Student experiment	20%		
Summative external assessment (EA): 50% • Examination — combination response			