



MARINE SCIENCE

General Senior Subject

Marine Science provides opportunities for students to study an interdisciplinary science focusing on marine environments and the consequences of human influences on ocean resources. In Unit 1, students develop their understanding of oceanography. In Unit 2, they engage with the concept of marine biology. In Unit 3, students study coral reef ecology, changes to the reef and the connectivity between marine systems. This knowledge is linked in Unit 4 with ocean issues and resource management where students apply knowledge from Unit 3 to consider the future of our oceans and techniques for managing fisheries. 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.

Marine Science aims to develop students':

- sense of wonder and curiosity about the complexity of marine life and a respect for all living things and the environment
- appreciation of global stewardship, which involves an understanding of the value systems associated with the marine environment and its importance in maintaining biological support systems
- interpretation of scientific evidence to make judgments and decisions about the effective management of the marine environment
- investigative skills that can be used to evaluate environmental issues and their potential to affect the fragility of marine environments
- understanding of how marine 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 marine science concepts, theories and models related to marine systems at all scales, from species to ecosystem
- appreciation of how marine knowledge has developed over time and continues to develop; how scientists use marine science in a wide range of applications; and how marine 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 marine science understanding, findings, arguments and conclusions using appropriate representations, modes and genres.

Pathways

A course of study in Marine Science can establish a basis for further education and employment in the fields of marine sciences, biotechnology, aquaculture, 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
Oceanography • An ocean planet • The dynamic shore	Marine biology • Marine ecology and biodiversity • Marine environmental management	Marine systems — connections and change • The reef and beyond • Changes on the reef	Ocean issues and resource management • Oceans of the future • Managing fisheries

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			