



# SCIENCE

Science is a core subject that is compulsory until the end of Year 10. At Year 9 and Year 10 level, students may select science electives in addition to their core science class.

Each year, students spend one term studying each of the strands of the science curriculum; Biological sciences, Chemical sciences, Earth and space sciences, and Physical sciences. Embedded within each unit are opportunities for Science Inquiry and exploring Science as a Human Endeavour.

At VCE level, students are offered the full suite of science subjects. They can choose from Biology, Chemistry, Physics, Psychology, and Environmental Science.

## Year 7-10 Science

Year 7	Year 8	Year 9	Year 10
Introduction to science May the force be with you: Simple Machines and the Physics of Motion	Matter & Change: Elements, Compounds, and Change	Riding the Waves: Energy Transfer and Power Generation	Chemical Reactions: Conservation, Classification, and Rates
A Tangled Web: Exploring Biodiversity and Ecosystem Interactions	Understanding Energy: Transformations, Transfers, and Everyday Applications	Body Defense: Regulation Systems and Disease Response	Carbon and Climate: Understanding Earth's Systems and Solutions
Matter in Motion: Particles, Properties, and Mixtures	From Cell to System: Structure, Function, and Organisation	Atomic organisation: Radioactivity and the Periodic Table	Generation to Generation: The Patterns and Processes of Life's Continuity
Earth's Resources & Cosmic Cycles: Sustainability, Seasons, and Tides	Dynamic Earth: Tectonic Forces, Rock Formation, and Geological Change	Exploring the Cosmos: The Origins, Challenges, and Frontiers of Space	Newton's Laws in Action: Motion, Energy, and Efficiency

## Year 9 & 10 Electives

Forensics	<p>Step into the role of a crime scene investigator in this hands-on elective. Learn real forensic techniques like fingerprint dusting, blood splatter analysis, DNA profiling, and many more. You'll explore a range of scientific tests and use your skills to solve fictional cases, culminating in the ultimate challenge, CSI: Monivae. Along the way, you'll strengthen your problem-solving abilities, sharpen your observations, and deepen your understanding of the scientific method, all while uncovering the science behind solving crimes. This elective strengthens your critical thinking, observation skills, and understanding of how science is applied in the real world – perfect for future detectives, scientists, or anyone who loves solving puzzles!</p>
Agricultural studies	<p>Get your hands dirty and your mind engaged in this forward-thinking agricultural elective! Throughout the semester, you'll develop skills in farm innovation as you analyse current farming practices and explore cutting-edge agricultural technologies. Regular visits to the Monivae Farm will give you practical experience, while the opportunity for guest speakers and excursions to local agricultural businesses will provide real-world perspectives. You'll develop skills in sustainable farming practices, agricultural technology assessment, and business planning as you create a future-focused development proposal for the Monivae Farm. This hands-on elective is perfect for students interested in agriculture, environmental sustainability, or rural business, and provides excellent preparation for Certificate courses in Agriculture/Horticulture or VCE Environmental Science.</p>
Explore the Animal Kingdom	<p>Explore the diversity of life as we work our way through the animal kingdom, from the simplest invertebrates like sponges and jellyfish to complex organisms such as birds and mammals. Each week focuses on a new group of animals, examining how their bodies are structured and how their systems function. You'll use microscopes, slides, live specimens, and perform dissections to investigate systems like the circulatory, respiratory, and skeletal systems. Ideal for students curious about biology, veterinary science, health, or agriculture.</p> <p>Please note: Dissection is a required part of this elective.</p>
Environmental science	<p>Become an environmental problem-solver in this dynamic, interdisciplinary elective. Combining elements of chemistry, biology, and earth science, you'll investigate human impacts on our environment and develop innovative solutions to real ecological challenges. Through a combination of classroom learning, laboratory experiments, and outdoor fieldwork, you'll master environmental monitoring techniques and develop data collection skills. Following compelling case studies from problem identification through to solution implementation, you'll experience the complete cycle of environmental management. This elective includes some outdoor experiences and hands-on projects that develop practical scientific skills valuable for VCE Environmental Science or Biology.</p>

Psychology: Opening Minds	Dive into the fascinating world of how our minds work! In this engaging elective, you'll explore the science behind human behaviour, emotions, and thought processes through psychological experiments and research projects. Discover the powerful techniques of positive psychology that can enhance your wellbeing and resilience, while developing critical thinking skills through analysing real psychological studies. You'll design and conduct your own experiments, learn about effective research methods, and practice mindfulness techniques that support mental health. This elective provides an excellent foundation for VCE Psychology while focusing on the most intriguing aspects of the human mind.
---------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

## VCE Science

### Biology

VCE Biology enables students to investigate the processes involved in sustaining life at cellular, system and species levels. In undertaking this study, students develop an understanding that, in the dynamic and interconnected system of life, all change has consequences that may affect an individual, a species or the collective biodiversity of Earth. Students gain insights into how molecular and evolutionary concepts and key science skills underpin much of contemporary biology, and how society applies such skills and concepts to resolve problems and make scientific advancements.

- Unit 1: How do organisms regulate their functions?
- Unit 2: How does inheritance impact on diversity?
- Unit 3: How do cells maintain life?
- Unit 4: How does life change and respond to challenges?

### Chemistry

VCE Chemistry enables students to investigate a range of chemical, biochemical and geophysical phenomena through the exploration of the nature of chemicals and chemical processes. Sustainability principles, concepts and goals are used to consider how useful materials for society may be produced with the least possible adverse effects on human health and the environment. In undertaking this study, students apply chemical principles to explain and quantify the behaviour of matter, as well as undertake practical activities that involve the analysis and synthesis of a variety of materials.

- Unit 1: How can the diversity of materials be explained?
- Unit 2: How do chemical reactions shape the natural world?
- Unit 3: How can design and innovation help to optimise chemical processes?
- Unit 4: How are carbon-based compounds designed for purpose?

## Physics

VCE Physics enables students to use observations, experiments, measurements and mathematical analysis to develop qualitative and quantitative explanations for phenomena occurring from the subatomic scale to macroscopic scales. They explore the big ideas that changed the course of thinking in physics such as relativity and quantum physics. While much scientific understanding in physics has stood the test of time, many other areas continue to evolve, leading to the development of more complex ideas and technological advances and innovation. In undertaking this study, students develop their understanding of the roles of careful and systematic observation, experimentation and modelling in the development of theories and laws. They undertake practical activities and apply physics principles to explain and quantify phenomena.

- Unit 1: How is energy useful to society?
- Unit 2: How does physics help us to understand the world?
- Unit 3: How do fields explain motion and electricity?
- Unit 4: How have creative ideas and investigation revolutionised thinking in physics?

## Psychology

VCE Psychology is designed to enable students to explore the complex interactions between thought, emotions and behaviour. They develop an insight into biological, psychological and social factors and the key science skills that underpin much of psychology. VCE Psychology is designed to promote students' understanding of how society applies such skills and psychological concepts to resolve problems and make scientific advancements. The study is designed to promote students' confidence and their disposition to use the information they learn in the study in everyday situations.

- Unit 1: How are behaviour and mental processes shaped?
- Unit 2: How do internal and external factors influence behaviour and mental processes?
- Unit 3: How does experience affect behaviour and mental processes?
- Unit 4: How is mental wellbeing supported and maintained?

## Environmental Science

VCE Environmental Science enables students to explore the interrelationships between Earth's four systems. Students examine how past and current human activities affect the environment and how future challenges can be managed sustainably. In undertaking this study, students gain an understanding of the complexity of environmental decision-making, and how innovative responses to environmental challenges can reduce pressure on Earth's natural resources and ecosystem services.

- Unit 1: How are Earth's dynamic systems interconnected to support life?
- Unit 2: What affects Earth's capacity to sustain life?
- Unit 3: How can biodiversity and development be sustained?
- Unit 4: How can climate change and energy impacts be managed?



pathways

educating the

mind  
spirit  
heart