

# Biology & Chemistry of Life

*This subject is recommended for students who may be interested in VCE Chemistry and/or VCE Biology. It aims to prepare students for either VCE subject as well as introduce students to applications of Chemistry and Biology in society.*

Students will learn how scientific theories can be used to explain the diversity of life on Earth. These theories are based on evidence and observations and can be used to make predictions and be refined over time. Students will explore the role of DNA and genes in cell division and genetic inheritance. The atomic structure of elements can be used to organise the elements in the Periodic Table. The life-sustaining reactions of photosynthesis and respiration are explored in depth to understand atomic bonding and chemical equations. The factors that control the speed of these reactions is also examined. Students will develop questions and hypotheses that can be investigated. Students design appropriate methods of determining the variables to be investigated and how to accurately collect data. Students analyse trends in data and identify sources of error.

## AREA OF STUDY

- Explore reactions involving acids and bases.
- Develop equation writing skills.
- Apply these skills to design experiments revealing reaction mechanisms and factors affecting rates.
- Formulate questions or hypotheses that can be investigated scientifically.
- Plan, select and use appropriate investigation methods.
- Consider possible independent and dependent variables and ensure these are controlled appropriately.

## AREA OF STUDY

- Understand DNA's role as the blueprint for controlling organism characteristics and its relation to genes and chromosomes.
- Comprehend genetic information transmission through meiosis to gametes.
- Represent inheritance patterns using Punnett Squares and Pedigree Charts. Predict offspring genotypes and phenotypes.
- Analyse patterns and trends in data, including identifying inconsistencies.
- Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language and representations.