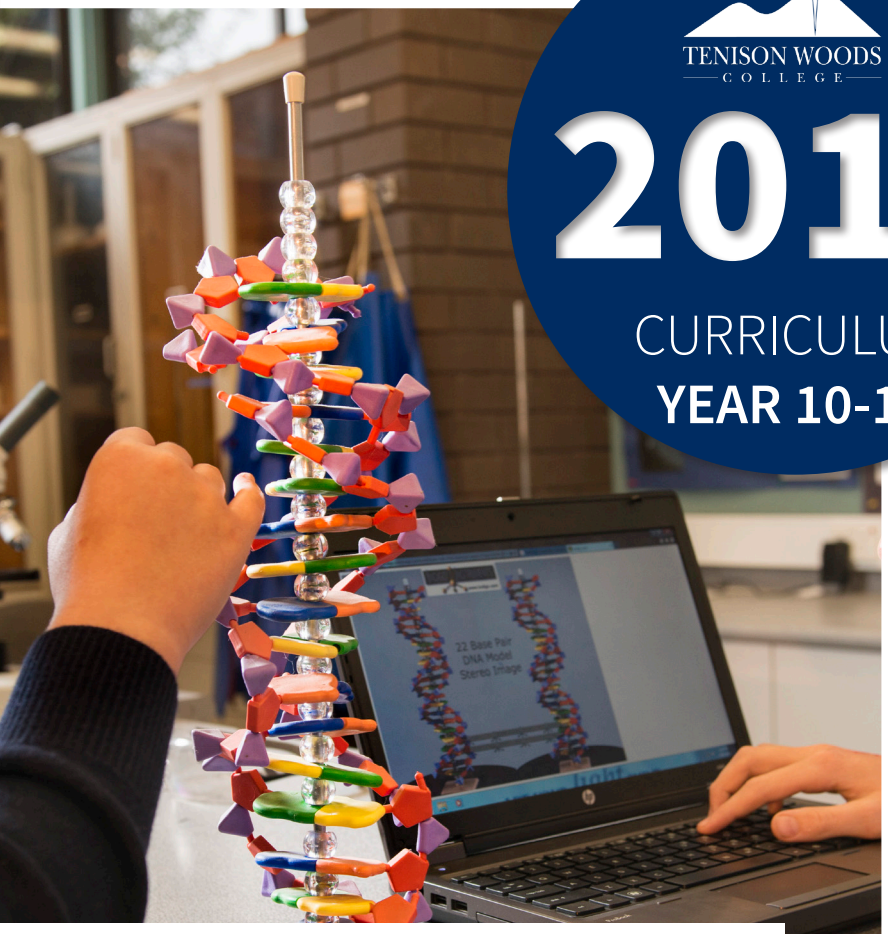
LET YOUR *light* SHINE

SCIENCE

TENISON WOODS COLLEGE

2019 CURRICULUM YEAR 10-12



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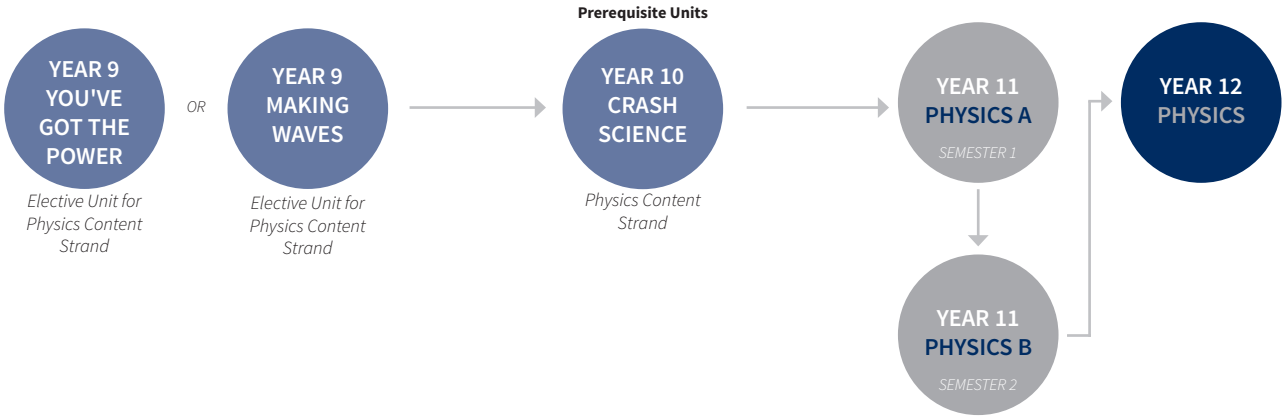
CONTENT STRANDS : BIOLOGICAL SCIENCES • CHEMICAL SCIENCES • EARTH AND SPACE SCIENCES • PHYSICAL SCIENCES

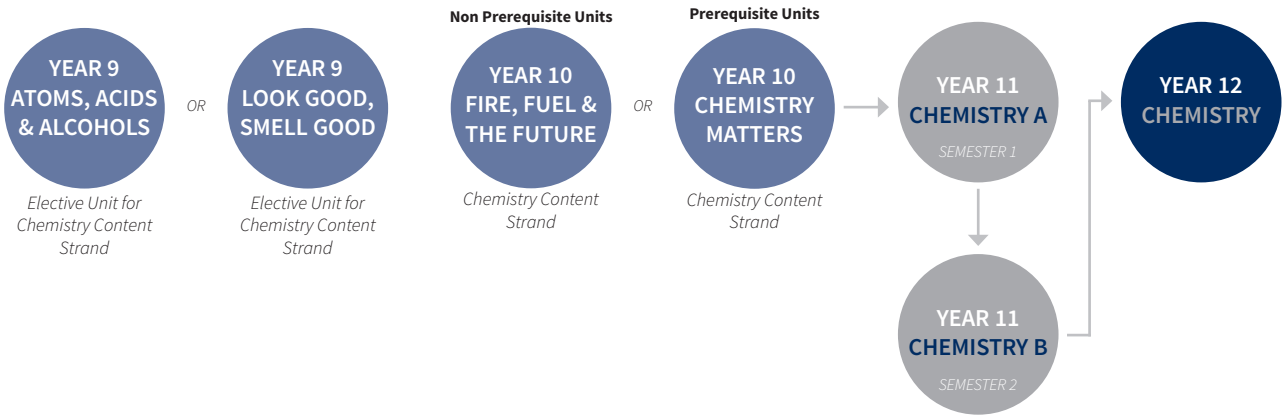
[SCIENCE]

YEAR 8 SCIENCE
COMPULSORY

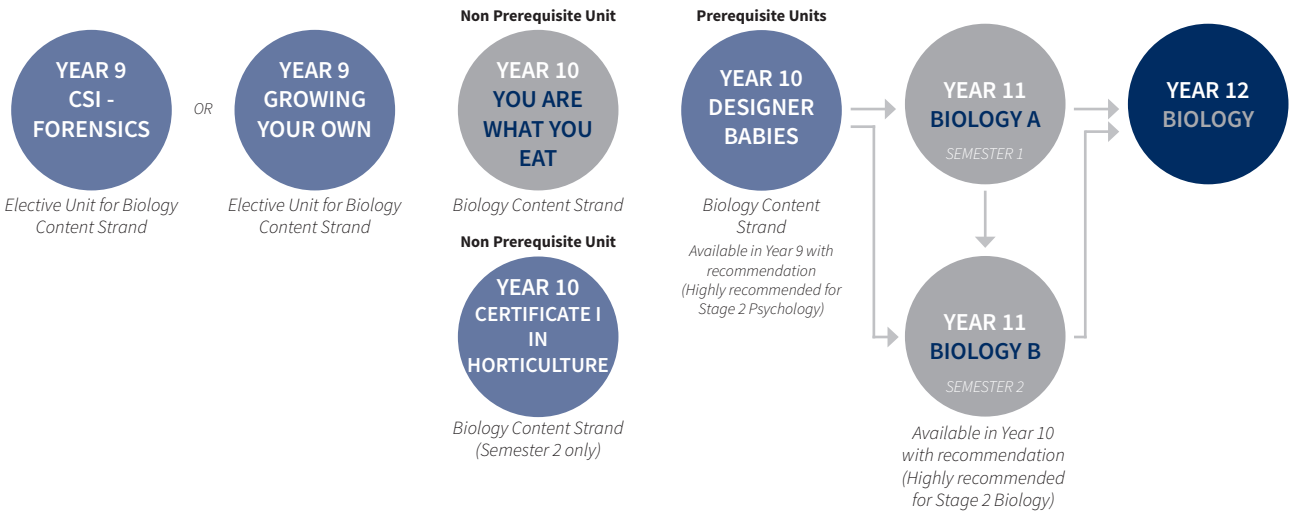
SCIENCE - PHYSICS STRAND



SCIENCE - CHEMISTRY STRAND



SCIENCE - BIOLOGY STRAND



[SCIENCE]

YEAR 8
SCIENCE
COMPULSORY

SCIENCE - EARTH AND SPACE STRAND

YEAR 9
DISASTERS

Elective Unit for Earth and Space Content Strand

Non Prerequisite Unit

YEAR 10
REACH FOR THE SKY

Non Prerequisite Unit

YEAR 10
HEAVENS ABOVE

SCIENCE COMPULSORY

YEAR 10
SCIENCE SKILLS
TERM 4

SCIENCE

Stage 1 Robotics is available in Year 10 OR Year 11 (students cannot do both years). Can lead to Stage 2 Scientific Studies.

YEAR 9
JUNIOR ENGINEERING
SEMESTER

Elective Unit

Prerequisite Units

YEAR 10
ROBOTICS

Prerequisite Units

YEAR 11
ROBOTICS

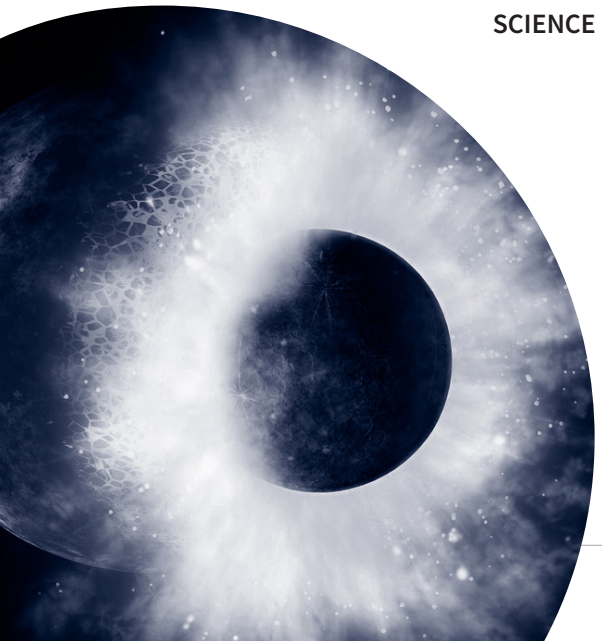
Students cannot choose Robotics and Scientific studies

YEAR 11
SCIENTIFIC STUDIES
SPORTS SCIENCE
SEMESTER 1 OR SEMESTER 2

YEAR 12
SCIENTIFIC STUDIES
SPORTS SCIENCE

(Negotiated or Sports Science)

Available at Year 11 with Recommendation



SCIENCE - PSYCHOLOGY STRAND

YEAR 11
PSYCHOLOGY
SEMESTER 1 OR SEMESTER 2

Repeated Semester 1 Unit. Available in Year 10 with recommendation (Highly recommended for Stage 2 Psychology)

YEAR 12
PSYCHOLOGY

Available in Year 11 with recommendation

[SCIENCE]

The study of Science is all about investigating. Students that undertake Science gain valuable knowledge about their own body and the world around them, while also learning how to solve problems and answer questions using the scientific method. The student develops skills in communicating scientifically to different audiences for a range of purposes and discovers the links between Science and other Learning Areas. Students will be required to complete four modules of study, each of one term's length. Students can choose any three of the nine modules listed, (each from a different strand). Every module offered will not necessarily run. Some may not run if the number of students choosing the module is low. Science Skills is compulsory in Term 4 and students will be placed in classes that will best prepare them for Stage 1.

EARTH AND SPACE STRAND - REACH FOR THE SKY

Year Level: 10 **SACE Credits:** N/A
Pathways: Stage 1 Scientific Studies
Prerequisites: None **Length:** 1 term
Strand: Physical Sciences

Course Description:
Students discover how to build and launch a rocket and how rockets orbit planets. They then research different NASA space missions and investigate the difficulties of space travel.

Assessment:
Students will be assessed on their scientific knowledge, practical and investigation skills as well as problem solving and communication skills. The nature of the assessment tasks will be negotiated and may include written tasks, practical tasks, assignments, projects, oral and multi-media presentations, peer and self-assessment. This unit will conclude with an 80-minute examination which will carry a 10% weighting.

EARTH AND SPACE STRAND - HEAVENS ABOVE

Year Level: 10 **SACE Credits:** N/A
Pathways: Stage 1 Scientific Studies
Prerequisites: None **Length:** 1 term
Strand: Earth and Space Sciences

Course Description:
Beginning with the creation stories from a variety of cultures and times, students will explore recent theories explaining the origin of the universe. They will then investigate the various types of stars, their characteristics and life-cycles. Finally, the formation of the planets will be investigated with a focus on Earth and its life forms.

Assessment:
Students will be assessed on their scientific knowledge, practical and investigation skills, as well as problem solving and communication skills. The nature of the assessment tasks will be negotiated and may include written tasks, practical tasks, assignments, projects, oral and multi-media presentations, peer and self-assessment. This unit will conclude with an 80-minute examination which will carry a 10% weighting.

PHYSICS STRAND - CRASH SCIENCE

Year Level: 10 **SACE Credits:** N/A
Pathways: A pre-requisite for Stage 1 Physics
Prerequisites: Minimum B grade in at least three Year 9 units.
Special Considerations: This course is a pre-requisite for Stage 1 Physics, and is highly mathematical in its content
Length: 1 term **Strand:** Physical Sciences

Course Description:
In this unit students discover how police analyse crash scenes to determine the cause of accidents. They will be able to calculate speed, acceleration, displacement and velocity, as well as interpret motion graphs. Students will also learn about forces, momentum and inertia, through Newton's Laws and will be able to relate these ideas to crash scenarios. By the end of the unit they will have the skills to analyse a crash scene. This will equip the student with the necessary skills for studies in Stage 1 Physics.

Assessment:
Students will be assessed on scientific knowledge, practical and investigation skills as well as problem solving and communication skills. The nature of the assessment tasks will be negotiated and may include written tasks, practical tasks, assignments, projects, oral and multi-media presentations, peer and self-assessment. This unit will conclude with an 80-minute examination which will carry a 20% weighting.

BIOLOGY STRAND - DESIGNER BABIES

Year Level: 10 **SACE Credits:** N/A
Pathways: Highly recommended for Stage 1 Biology.
Prerequisites: None **Length:** 1 term
Special Considerations: This course is highly recommended for students wishing to study Stage 1 Biology
Strand: Biological Sciences

Course Description:
This unit will provide the student with a working knowledge of DNA, Mendelian genetics, inheritance, gene technologies and reproductive technologies. It will also provide an insight in the ethics of human intervention.

Assessment:
Students will be assessed on their scientific knowledge, practical and investigation skills as well as problem solving and communication skills. The nature of the assessment tasks will be negotiated and may include written tasks, practical tasks, assignments, projects, oral and multi-media presentations, peer and self-assessment. This unit will conclude with an 80-minute examination which will carry a 25% weighting.

[SCIENCE]

CHEMISTRY STRAND - CHEMISTRY MATTERS

Year Level: 10 **SACE Credits:** N/A
Pathways: A pre-requisite for Stage 1 Chemistry
Prerequisites: Minimum B grade in at least three Year 9 units.
Length: 1 term **Strand:** Chemical Sciences
Special Considerations: This course is a pre-requisite for Stage 1 Chemistry

Course Description:
The three topics covered in this unit are: Atoms and Their Structure, Molecules and Compounds and Chemical Reactions. This unit will equip students with the skills and knowledge required for studying Chemistry at Stage 1.

Assessment:
Students will be assessed on their scientific knowledge, practical and investigation skills as well as problem solving and communication skills. Assessment tasks include three tests (35%), two-three practical reports (30%), and Issues Investigation (20%) and an 80-minute examination which will carry a 15% weighting.

CHEMISTRY STRAND - FIRE, FUEL & THE FUTURE

Year Level: 10 **SACE Credits:** N/A
Pathways: Stage 1 Scientific Studies
Prerequisites: None **Length:** 1 term
Strand: Chemical Sciences

Course Description:
Why are some substances commonly used as fuels while others are not? Students learn the answer to this and many other questions about fuels and why we use them. They will also find out about common fuels and how as a society we use them and their links with petrols, plastics and nylon.

Assessment:
Students will be assessed on their scientific knowledge, practical and investigation skills as well as problem solving and communication skills. The nature of the assessment tasks will be negotiated and may include written tasks, practical tasks, assignments, projects, oral and multi-media presentations, peer and self-assessment. This unit will conclude with an 80-minute examination which will carry a 10% weighting.

SCIENCE SKILLS

Year Level: 10 **SACE Credits:** N/A
Pathways: All Stage 1 Sciences
Prerequisites: None
Length: 1 term **Strand:** All

Special Considerations: Students will be placed with an appropriate cohort of peers. Those intending to continue with Stage 1 Biology, Chemistry, Physics or Psychology will have a course tailored in preparation for the rigors of Stage 1. Those not intending to continue with those subjects will engage in a course tailored to developing scientific literacy.

Course Description:
Learn how to plan and conduct a fair experiment, appropriately display and analyse your results and reach reasoned conclusions. Students also hone their researching and referencing skills, as well as develop their critical thinking skills in preparation for Stage 1 if that is their intended path or for successfully navigating other aspects of life if it is not.

Assessment:
Students will be assessed on their scientific knowledge, practical and investigation skills as well as problem solving and communication skills. The nature of the assessment tasks will be negotiated and may include written tasks, practical tasks, assignments, projects, oral and multi-media presentations, peer and self-assessment.

BIOLOGY STRAND - YOU ARE WHAT YOU EAT

Year Level: 10 **SACE Credits:** N/A
Pathways: Stage 1 Scientific Studies
Prerequisites: None **Length:** 1 term
Strand: Biological Sciences

Course Description:
What happens to all the food we eat? By the end of this unit, the student should understand why we eat, how we process the food and what happens if we get it wrong.

Assessment:
Students will be assessed on their scientific knowledge, practical and investigation skills as well as problem solving and communication skills. The nature of the assessment tasks will be negotiated and may include written tasks, practical tasks, assignments, projects, oral and multi-media presentations, peer and self-assessment.

[SCIENCE]

CERTIFICATE I IN HORTICULTURE

Year Level: 10 or 11 (Stage 1)
SACE Credits: Minimum 10 credits
Pathways: Employment, further TAFE study at Certificate II or higher in Horticulture, Agriculture and Land Management.
Prerequisites: None
Length: 1 semester

Course Description:
This qualification is an entry-level qualification aimed at individuals entering the agriculture, horticulture and conservation and land management industries. It allows individuals to develop basic skills and knowledge to prepare for work. They may undertake a range of simple tasks under close supervision. The range of technical skills and knowledge is limited.
Units offered may include: Maintain the Workplace; Work Safely; Follow Basic Chemical Safety Rules; Support Horticulture Production; Support Gardening Work and Support Nursery Work.

Assessment:
Assessment will be practical based and students will be required to show evidence of competencies in relation to the required skills and knowledge.

BIOLOGY

The study of Biology offers opportunities for students to consider the impact of human activities both on the organisms and ecosystems that constitute the biosphere and on individual human beings and human society. The ideas and theories of Biology are applied in many other disciplines (e.g. biochemistry, pharmacology, sport science). Biology provides useful background knowledge for many occupations in fields such as agriculture, conservation, forestry, horticulture, medicine, pollution control, veterinary science, and viticulture.

BIOLOGY A

Year Level: 11 (Stage 1)
SACE Credits: 10
Pathways: Stage 2 Biology or Stage 2 Scientific Studies.
Prerequisites: Successful completion of Year 10 Science Skills with a minimum of a C grade. Year 10 Designer Babies recommended.
Length: 1 semester (first)

Special Considerations: This subject is highly recommended for students intending to study Stage 2 Biology. This course is available at Year 10 to students with recommendation.

Course Description:
In this course students investigate the major organ systems within organisms and how they exchange and transport materials with their environment in order to survive. Six topics are covered over the semester. In 'Fundamental Principles of Biology' students explore the structure and function of the cell and its components. 'Getting Energy' is the study of the ways in which organisms obtain energy and how that energy is released in the cells. In 'Nutrition and Digestion' students explore the chemical requirements of organisms and the process by which these are digested and absorbed. 'Gas Exchange' is the investigation of specialised structures used by organisms (both plant and animal) for gaseous exchange. 'Transport' includes the function of the circulatory system in animals and plants and evaluating the difference between the two systems.

Assessment:
Assessment components include tests, assignments, practicals and a semester examination.

BIOLOGY B

Year Level: 11 (Stage 1)
SACE Credits: 10
Pathways: Stage 2 Biology or Stage 2 Scientific Studies
Prerequisites: Successful completion of Year 10 Science Skills with a minimum of a C grade. Year 10 Designer Babies recommended.
Length: 1 semester (second)
Special Considerations: This subject is highly recommended for students intending to study Stage 2 Biology. This course is available at Year 10 to students with recommendation.

Course Description:
Four topics are covered in this course. "DNA and Protein Synthesis' compares the structures of DNA and RNA as genetic material and the how proteins are made within the cell. 'Classification' covers the principles of classification, including the binomial system and the processes involved in the evolution of the variety of species present today. 'Infectious Disease and the Immune System' looks at the variation in pathogens, how they are transmitted and how they cause disease in organisms. Students also investigate the function of the immune system in protecting the organism against pathogens including physical barriers, non-specific and acquired immune responses. 'Living in an Ecosystem' students investigate the overall structure of ecosystems, including food chains and how energy and matter flows through the system, as well as population sampling methods.

Assessment: Assessment consists of tests, assignments, practicals and a semester exam. This will include an all day excursion to Piccaninnie Ponds where the students apply the theory they have learnt in a practical setting that is relevant to the local environment.

Additional Information: Cost: All day excursion to Piccaninnie Ponds at a cost of approximately $15.00.

[SCIENCE]

BIOLOGY

BIOLOGY

Year Level: 12 (Stage 2)
SACE Credits: 20
Pathways: This is a highly recommended subject for a number of tertiary Science degrees (both University and TAFE) including those focusing on the Health Sciences, Agriculture, Biotechnology and research. Please refer to the current tertiary admissions guides for specific information about courses of interest.
Prerequisites: Satisfactory achievement in at least one unit of Stage 1 Biology is highly recommended.
Length: 1 year
Special Considerations: This course is available at Year 11 with recommendation

Course Description:
Stage 2 Biology is studied under four themes entitled DNA and Proteins, Cells as the Basis of Life, Homeostasis and Evolution. In DNA and Proteins students investigate the structure and function of DNA and develop an understanding of how genetic information is expressed as proteins, as well as the roles of these proteins in the cell. They speculate on the possible outcomes of gene modification and explore the associated ethical, social, environmental, and economic implications and outcomes. Cells as the Basis of Life deals with the structure, function and reproduction of prokaryotic and eukaryotic cells, how they evolved and divide, and how they exchange materials with their environment through the cell membrane. For the Homeostasis topic students study some of the body systems, including the nervous, endocrine, and excretory systems and how they play interdependent roles in the regulation of body processes to maintain homeostasis, in conjunction with the stimulus response model. In Evolution students investigate the genetic basis for the theory of evolution by natural selection and explore genetic variation in gene pools. They discuss the influences of humans on habitat change and the implications of our actions.

Each theme in turn is integrated with the three stands of science which include science inquiry skills, science as a human endeavour, and science understanding. These threads give a consistency of approach to the subject and help to unify the ideas studied.

Assessment:
70% of the final assessment is from course work and 30% is from a two-hour external examination. The course work consists of an Investigations Folio (30%) and Skills and Applications Tasks (40%).

Additional Information:
Students are strongly encouraged to purchase a SASTA Biology Revision Guide ($32). SASTA Stage 2 Workbook ($58) is optional. These are available to purchase in Term 1.

CHEMISTRY

The study of Chemistry helps students to develop an understanding of the processes that determine the behaviour of matter from the small (atoms, molecules, and ions) to larger quantities. Chemistry is a subject for students who are interested in natural and processed materials, and the ways in which people obtain, manufacture, and use materials in their everyday lives.

CHEMISTRY A

Year Level: 11 (Stage 1) **SACE Credits:** 10
Pathways: Stage 1 Chemistry B (Semester 2) and Stage 2 Chemistry
Prerequisites: Successful completion of Year 10 Chemistry Matters and Year 10 Science Skills with a minimum of a B grade in both
Length: 1 semester
Special Considerations: This subject is a prerequisite for Semester 2 Chemistry B and Stage 2 Chemistry. In this course students will further develop their knowledge and skills of Chemistry begun in Years 8, 9 and in particular Year 10 Chemistry Matters units.

Course Description:
Students begin the course by revising atomic structure and the basic chemical bonding concepts covered in Year 8, 9 and 10 Chemistry units. The course then progresses to study in more depth the concepts and skills associated with Ionic, Covalent and Metallic Bonding. Students then study Chemical Reactions with an emphasis on writing full chemical and ionic equations as well as the energy changes within the reaction. Finally, the students are introduced to Organic Chemistry where they develop skills in systematically naming and grouping organic compounds, learn how properties are related to functional groups present in a compound and gain an understanding of the procedures of fermentation and polymerization.

Assessment:
Students show evidence of their learning through five assessment tasks, each of which has a weighting of 20%. These include at least one practical investigation, at least one Issues Investigation and a semester examination. The remaining two tasks may include tests, practical reports, or another Issues Investigation. One of these tasks will involve collaborative work.

[SCIENCE]

CHEMISTRY

CHEMISTRY B

Year Level: 11 (Stage 1) **SACE Credits:** 10
Pathways: Stage 2 Chemistry
Prerequisites: Successful completion of Stage 1 Chemistry A (Semester 1) with a minimum of a B grade
Length: 1 semester (second)
Special Considerations: This subject, along with Chemistry A, is a prerequisite for Stage 2 Chemistry

Course Description:
Students begin the course with an introduction to the Mole Concept and then move on to develop the skills and an understanding of Stoichiometry where the importance of mathematical calculations in a chemical context is considered. The course then progresses to study in more depth the concepts and skills associated with the study of Acids and Bases, including Bronsted-Lowry definitions, pH and an introduction to titrations as a means of chemical analysis. Finally, the students are introduced to the electron transfer reactions known as redox reactions and move on to study important applications of these reactions in the area of Electrochemistry. Here they gain an understanding of the workings of batteries and other forms of portable power as well the industrial use of electrolytic cells in the production of metals.

Assessment:
Students show evidence of their learning through five assessment tasks, each of which has a weighting of 20%. These include at least one practical investigation, at least one Issues Investigation and a semester examination. The remaining two tasks may include tests, practical reports, or another Issues Investigation. One of these tasks will involve collaborative work.

CHEMISTRY

Year Level: 12 (Stage 2) **SACE Credits:** 20
Pathways: This is a highly recommended and pre-requisite subject for a number of tertiary Science degrees including those focusing on Chemistry, Biochemistry, Pharmacy, Materials Science and research. Please refer to the current tertiary admissions guides for specific information about courses of interest.
Prerequisites: Successful completion of Stage 1 Chemistry A and B with a minimum of a B grade in both semester units.
Length: 1 year

Course Description:
The topics are:

- Monitoring the Environment: In this topic, students undertake practical analytical activities, develop manipulative skills, and examine sources of experimental errors. They analyse the causes of environmental issues and explore possible solutions.
- Managing Chemical Processes: In this topic, students investigate how chemicals are produced and how creative thinking has led to innovations in production. They explore aspects of green chemistry relating to improving efficiency of processes and reduction in energy use.
- Organic and Biological Chemistry: Students investigate the reactions and preparations of a range of organic compounds and extend their laboratory skills by using specialised glassware. They increase their understanding of international protocols used by organic chemists for naming organic compounds and writing structural formulae.
- Managing Resources: Students examine issues that have arisen as a consequence of human exploitation of the Earth's resources, and how these issues might be addressed. Possible practical investigations include fermentation, biodiesel production, and the energy available from different fuels.

Assessment:
70% of the final assessment is from course work and 30% is from a three-hour external examination. The course work consists of an Investigations Folio (30%) and Skills and Applications Tasks (40%).

Additional Information:
Cost: SASTA Stage 2 Workbook ($58).
Optional: Lab Coat ($28), Chemistry SASTA Study Guide ($32),
These are available to purchase in Term 1.

[SCIENCE]

PHYSICS

Physics is the Science that helps us understand the world around us. It is the Science behind many modern technologies and devices that influence our daily lives (including medical diagnosis, information technologies, and engineering). Physics is a subject for students who are interested in understanding how things work in their everyday lives. The study of physics ranges from the study of the microscopic world of elementary particles to the scale of the universe.

PHYSICS A

Year Level: 11 (Stage 1) **SACE Credits:** 10
Pathways: Stage 1 Physics B and Stage 2 Physics
Prerequisites: Successful completion of Year 10 Crash Science and Year 10 Science Skills with a minimum of a B grade in both.
Length: 1 semester (first)
Special Considerations: This subject is a prerequisite for Stage 1 Physics B and Stage 2 Physics.

Course Description:
In this course students undertake two main overarching topics with a focus on the applications of the theory covered. This subject is a prerequisite for Semester 1 Physics B and Stage 2 Physics.

The topics covered are:
- Linear Motion and Forces – students study displacement, equations of motion, speed and velocity. Students investigate the components of vectors as well as their addition and subtraction. Students are introduced to different forces and Newtonian Laws;
- Energy and Momentum – students study energy and work and the relationship between the two. Students extend their understanding of the relationship that exists between force and the motion of an object by looking at momentum relationships that occurring during collisions and explosions.
- Heat – introduces students to the link between the temperature of matter and the kinetic energy of its particles. They investigate flow of energy in terms of conduction, convection and radiation

Assessment:
Students will show evidence of their learning through four assessment tasks, each of which will have an equal weighting of 25%. These will include two tests, a practical investigation and a science as a human endeavour task. Students will also complete a semester examination.

PHYSICS B

Year Level: 11 (Stage 1) **SACE Credits:** 10
Pathways: Stage 2 Physics
Prerequisites: Successful completion of Stage 1 Physics A (Semester 1) with a minimum of a B grade.
Length: 1 semester (second)
Special Considerations: This subject is a prerequisite study for Stage 2 Physics.

Course Description:
This course is a continuation from Physics A and covers two topics. In this course students will further develop their knowledge and skills of Physics such that they will have the prerequisites to enable them to successfully complete Stage 2 Physics.

The topics covered are:
- Electric Circuits – students explore the concepts of electric charge, potential difference, current, resistance, electric power, and efficiency.
- Waves – students investigate the properties of waves with a focus on light and sound waves. It examines the characteristics of light waves including reflection, refraction and interference of the electromagnetic spectrum.
- Nuclear Models and Radioactivity – introduces students to the basic structure of the nucleus, radioactivity and nuclear fission and fusion.

Assessment:
Students will show evidence of their learning through four assessment tasks, each of which will have an equal weighting of 25%. These will include two tests, a practical investigation and a science as a human endeavor task. Students will also complete a semester examination.

[SCIENCE]

PHYSICS • PSYCHOLOGY

PHYSICS

Year Level: 12 (Stage 2)
SACE Credits: 20
Pathways: This is a highly recommended and pre-requisite subject for a number of tertiary Science degrees including those focusing on Engineering, Technology, Radiology and Research. Please refer to the current tertiary admissions guides for specific information about courses of interest.
Prerequisites: Satisfactory Achievement in both Stage 1 Physics A and B with a minimum of a B grade in both semester units.
Length: 1 year
Special Considerations: Students are strongly discouraged from undertaking this subject if they are not also studying Stage 2 Mathematical Methods.
Course Description:
In this course students will undertake four compulsory topics of study in line with the Stage 2 Physics Subject Outline as prescribed by the SACE Board.
The topics are:

- Motion and Relativity – requires students to investigate the properties of projectile motion, uniform circular motion, and relativity;
- Electricity and Magnetism – students explore electric fields and magnetic fields and the motions of particles within these fields;
- Light and Atoms – students investigate the wave behaviour of light including interference, wave-particle duality including the concepts of photons and how these relate to x-rays, and the structure of the atom and nucleus.

Assessment: 70% of the final assessment is from course work and 30% is from a three-hour external examination. The course work consists of an Investigations Folio (40%) and Skills and Applications Tasks (30%).

Additional Information: Cost: Physics Essentials Workbook ($62) SASTA Stage 2 Workbook ($58) Physics SASTA Revision Guide ($32). These are available to purchase in Term 1.

PSYCHOLOGY

Psychology is the science of the mind: the systematic study of behaviour. Psychologists are interested in how we learn, think and interact with others, what motivates our actions and the role of personality and individual differences in behaviour. Psychological knowledge not only provides insight into life as it currently is, but also opens the door to a range of possible futures. Psychological knowledge can be applied to improve outcomes and the quality of experience in every area of life (e.g. education, intimate relationships, child rearing, employment and leisure).

PSYCHOLOGY

Year Level: 11 (Stage 1) **SACE Credits:** 10
Pathways: Stage 2 Psychology
Prerequisites: Successful completion of Year 10 Science Skills with a minimum of a C grade.
Length: 1 semester
Special Considerations: This course is recommended for students intending to study Psychology at Stage 2. This course is available at Year 10 to students with recommendation.
Course Description: Students begin by investigating the basics of psychological knowledge. This includes the types of questions addressed by psychology, the types of evidence used to answer those questions, and the means used to gain that evidence. The course then covers two other topics, 'Brain and Behaviour' and 'Emotion'. 'Brain and Behaviour' involves the study of human brain structure and how our biological make-up contributes to our behaviour and the way in which we experience our environment. 'Emotion' allows students to see how an understanding of a psychological phenomenon – emotion – requires the integration of four levels of explanation of behaviour in psychology; biological processes, basic psychological processes, the attributes of the person enacting the behaviour, and the sociocultural processes.

Assessment: Assessment in this topic will consist of four to five summative tasks, including an applications task, collaborative investigation, tests and an examination.

PSYCHOLOGY

Year Level: 12 (Stage 2) **SACE Credits:** 20
Pathways: This is a highly recommended subject for a number of tertiary Science degrees including those focusing on Clinical Psychology, Counselling, Sport and research. Please refer to the current tertiary admissions guides for specific information about courses of interest. **Length:** 1 year
Prerequisites: Satisfactory achievement in Stage 1 Psychology is recommended.
Special Considerations: This course is available at Year 11 to students with recommendation.
Course Description: Students begin the course by investigating the different designs and methods of research and their ethical considerations. As the course progresses students delve into the relationship between social cognition and behaviour, the analysis of personality and its proposed social and cultural construction, the influence of past and present events on learning, the changing states of awareness, including stress, sleep and sleep deprivation, and the investigation into the effective ways of promoting healthy minds.
Stage 2 Psychology is an evidence-based subject in which ethical issues have a central place. Psychological investigations involve the investigator collecting quantitative and/or qualitative data by observation of selected participants. Either experimental, quantitative observational or qualitative investigations can be conducted under either controlled or 'field' conditions.
Assessment: Assessment consists of six tests over the year (30%), a collaborative investigation (15%), an individual investigation (25%) and an examination (30%).
Additional Information: Cost: Psychology Essentials workbook ($53), Psychology SASTA Revision Guide ($32).

[SCIENCE]

SCIENTIFIC STUDIES

Through Scientific Studies students develop knowledge of scientific principles and concepts through their own investigations. They develop the skills and abilities to explain scientific phenomena, and to draw evidence-based conclusions from investigations of science-related issues. In this way, students develop scientific knowledge and skills to support them in their future career pathways, including those that are science-related, and everyday life in a world shaped by science and technology.

ROBOTICS

Year Level: 10 and 11 (Stage 1) **SACE Credits:** 10
Pathways: Stage 2 Scientific Studies, VET Courses, Stage 1 Information Technology
Prerequisites: None (Cutting Edge Science at Year 9 is recommended but not required)
Length: 1 Semester
Special Considerations: This course may be taken as a Stage 1 subject at year 10 or year 11 but may not be repeated

Course Description:
This is an opportunity for students to develop their STEM skills. The first term of the semester will be spent learning how to use 3D design software (Trimble Sketchup, though if they have experience with AutoCAD, MAYA or similar applications these may be used instead). They will also learn the basics of assembling and programming simple circuits and devices using the Arduino microcontroller and the compatible accessories and software that are readily available to anyone interested in electronics and programming. Once they have learnt the basics, they will then spend the rest of the semester designing, programming and testing their robot. The robot can be, within reason, anything they believe they can achieve in the time available, such as a robotic hand, a radio-controlled drone, or even a robotic animal.

Assessment:
Assessment in Robotics consists of the following components; an Investigation Folio (Issues and Practical Investigations) and Skills and Applications tasks (a presentation demonstrating their robot and its capabilities)

Additional Information:
The range and quantity of components the school can provide is limited compared to the diversity available. Should a student require specialised components and wish to keep their creation, they will need to purchase them at cost.

SCIENTIFIC STUDIES

Year Level: 11 (Stage 1)
SACE Credits: 10
Pathways: Stage 2 Scientific Studies, VET courses
Prerequisites: None
Length: 1 semester
Special Considerations: This course is available at Year 10 to students with recommendation.

Course Description:
Students studying Scientific Studies will have opportunities to explore areas of interest in the field of Science. This is an option for students who have an interest in Science but find the other Stage 1 Science offerings don't meet their interests or needs. Students will be given the opportunity to choose a research topic, from which they will design and conduct a large, extended practical investigation. They will document their planning and design and write a report detailing their findings. They will also have the opportunity to showcase their research if they choose. Suggested investigations include materials science, rocketry, aerodynamics, electronics and electromagnetism, etc.

Assessment:
Assessment in Scientific Studies consists of the following components; an Investigation Folio (Issues and Practical Investigations) and Skills and Application Tasks (Tests).

Additional Information:
Cost: There may be costs associated with the projects students choose. If resources are not available or reusable then costs may be forwarded on to students.

SCIENTIFIC STUDIES (NEGOTIATED TOPICS)

Year Level: 12 (Stage 2)
SACE Credits: 20
Pathways: This subject prepares students for a range of tertiary and employment options.
Prerequisites: None
Length: 1 year
Special Considerations: This course is available at Year 11 to students with recommendation.

Course Description:
Students selecting Scientific Studies (Negotiated) will explore individual learning interests in the field of Science. There will be flexibility in the selection of themes and topics studied based on the interests of the students.
Through Scientific Studies (Negotiated) students develop knowledge of scientific principles and concepts through their own investigations. They develop the skills and abilities to explain scientific phenomena, and to draw evidence-based conclusions from investigations of science-related issues. In this way, students develop scientific knowledge and skills to support them in their future career pathways, including those that are science-related, and everyday life in a world shaped by science and technology.

Assessment:
Students demonstrate evidence of their learning through Skills and Applications Tasks (30%), Investigation Folio Tasks (Issues and Practical Investigations) (40%). The external assessment component will be a Practical Investigation (30%).

[SCIENCE]

SCIENTIFIC STUDIES

SCIENTIFIC STUDIES (SPORTS SCIENCE)

Year Level: 12 (Stage 2) **SACE Credits:** 20
Pathways: This subject prepares students for a range of tertiary and employment options.
Prerequisites: Students selecting this option would benefit from having studied Stage 1 Physical Education and some Biology.
Length: 1 year
Special Considerations: This course is available at Year 11 to students with recommendation.

Course Description:
Students selecting Sports Science (Scientific Studies) will explore individual learning interests combining Science and Sport. There will be flexibility in the selection of themes and topics studied based on the interests of the students.

Through Scientific Studies students develop knowledge of scientific principles and concepts through their own investigations in areas such as practical sports, health and fitness, diet and nutrition etc. They develop the skills and abilities to explain scientific phenomena, and to draw evidence-based conclusions from investigations of sports science-related issues.

Assessment:
Students demonstrate evidence of their learning through a School Assessed Individual Inquiry Folio (50%) and Collaborative Inquiry (20%). The external assessment component will be an Individual Inquiry (30%).