






You will extend your understanding of how the physical world is chemically constructed, the interaction between human activities and the environment, and the use that human beings make of the planet's resources. You will explore examples of how scientific understanding is dynamic and develops with new evidence, which may involve the application of new technologies. You will study materials and their atoms, combinations of atoms, molecules, mixtures and solutions, acid and bases and redox reactions

SACE Stage 1 two semesters

|  Engage Skills |  Extend Knowledge | |  Enrich Experiences |
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| <ul style="list-style-type: none"> Deconstruct a problem to determine and justify the most appropriate method for investigation. Design investigations. Conduct investigations. Represent results of investigations in appropriate ways. Select, use, and interpret appropriate representations to explain concepts, solve problems, and make predictions. Analyse data. Identify sources of uncertainty. Evaluate reliability, accuracy, and validity of results, by discussing factors. Select and use evidence and scientific understanding to make and justify conclusions. Recognise the limitations of conclusions. Communicate to specific audiences and for specific purposes. | <p>Topic 1: Materials and their atoms Properties and uses of materials Atomic structure Quantities of atoms</p> <p>Topic 2: Combinations of atoms Types of materials Bonding between atoms Quantities of molecules and ions</p> <p>Topic 3: Molecules Molecule polarity Interactions between molecules Hydrocarbons Polymers</p> | <p>Topic 4: Mixtures and solutions Miscibility and solutions Solutions of ionic substances Quantities in reactions Energy in reactions</p> <p>Topic 5: Acid and bases Acid-base concepts Reactions of acids and bases The pH scale</p> <p>Topic 6: Redox reactions Concepts of oxidation and reduction Metal reactivity Electrochemistry</p> | <ul style="list-style-type: none"> Uni SA STEM opportunities - STEM Girls on Campus – others as they arise via STEM Girls Academy Science Olympiads (optional) Oliphant Awards (optional) National Youth Science Forum (optional) RACI Titration competition (optional) STEM Tour (optional – offered every two years) |

|  Assessments/Outcomes |  Pathways |
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| <p>Practical investigation, investigation with a focus on science as a human endeavour. Two skills and applications tasks. (10 Credit)</p> <p>Two practical investigations, two investigations with a focus on science as a human endeavour, four skills and applications tasks. (20 credits)</p> | <p>Career Pathways: Chemical engineer, Dietitian, Environmental scientist, Forensic scientist, Medicine and Medical Research, Oenologist (wine maker), Patent examiner, Pathologist, Pharmacy, Veterinarian and Veterinary Science, Chemical engineer, Environmental scientist, Forensic scientist, Medicine and Medical Research, Oenologist (wine maker), Patent examiner, Pathologist, Pharmacy, Veterinarian and Veterinary Science</p> |