SCIENCES

Science through technology, continues to transform our world. There is hardly any aspect of modern life unaffected by it. Science is a powerful way of generating and organising knowledge and a significant contributor to the cultural and intellectual development of our society. It is also indirectly responsible, through the application of its findings, for generating much of the material wealth and for providing most of the employment which preserves our way of life. Education in and through science plays a key role in maintaining and enhancing our capacity to enjoy these benefits.

Our science course is designed to assist students to become lifelong learners. A lifelong learner is:

- a knowledgeable person with deep understanding
- a complex thinker
- a creative person
- an active investigator
- an effective communicator
- a participant in an interdependent world
- a reflective and self-directed learner

Therefore, to enhance science education and to make it relevant to students, it is proposed that students can elect to study the science subject or subjects that are most relevant to their interests and/or study a science subject that can lead to further study of a particular strand of science in their senior years of schooling.

Students must choose to study at least ONE science subject. If they choose the Physical Science option they can also choose the Life Science option but not General Science. They can choose to do both the Life Science and General Science options. If they choose to study General Science it is probably unlikely that they will wish to continue with the study of Chemistry, Physics or Biology in Years 11 and 12, whereas the choice of either Physical Science and/or Life Science can offer a glimpse of what to expect when they choose to study Chemistry, Physics or Biology later.

PHYSICAL SCIENCE (CHEMISTRY/PHYSICS EMPHASIS)

The study undertaken in this subject could include topics such as:

- Data collection, handling, display and analysis, correct use of chemical and physics equipment, computer technology/literacy, laboratory book procedures and protocols and extended experimental investigation protocols
- Basic chemical reactions – formula writing, chemical equations and balancing, mole concept, stoichiometry, bonding using molecular models
- Extension maths/science units of study with a contextual focus: Driving in traffic and overtaking, plus mathematical skills used in senior science
- Machines and how they work e.g combustion engines (how they work chemically and physically), lawn mowers, power stations, solar hot water, mousetrap racer projects, robotics
**LIFE SCIENCE (BIOLOGY EMPHASIS)**

The study undertaken in this subject could include topics such as:

- Skills used in the study of Biology e.g. techniques of data collection, traps, measuring water quality, quadrats, transects, correct use of Biology specific equipment
- Health, Disease and Well-being – reproduction and genetics, pathogens, infectious diseases, non infectious diseases, the immune system, vaccines
- Environmental science, global warming, climate change, carbon emissions, carbon foot printing, carbon trading, impacts/stresses on the environment

**GENERAL SCIENCE OR EVERYDAY SCIENCE**

The study undertaken in this subject could include topics such as:

- Science literacy
- Forensic science – gathering data, finding clues, measuring, testing, deduction, analysis, evaluation
- Natural catastrophes – the earth and how it changes
- Reproduction, embryo growth and birth
- Driving/driver education – braking, speed/speeding, car maintenance (engine running, tyre pressure & tyres) fuel, forces, road rules, safety
- Energy efficiency/energy conservation, cost of electricity and water, reading meters, conservation measures
- Habitats/animal behaviour
- Project – science newspaper/articles

**ASSESSMENT**

Assessment instruments will provide:

- Opportunities for students to demonstrate their understanding
- A level of challenge suitable for the range of students studying the subject
- Information about students’ demonstration of the achievement of the objectives of the subject

Assessment techniques will include:

- Supervised assessment
- Extended response tasks
- Extended experimental investigations

The criteria used in making judgements about a student’s level of achievement are:

- Knowledge and understanding
- Investigating
- Communicating
- Reflecting

Science is considered to be a subject of great importance as it can have a profound social impact. Future citizens need to understand this in order to be equipped to cope with present and future change. Indeed, those who intend to pursue science as a career need to be most aware of its nature and effects.