S3 Physics

# Course Rationale

Physics is the most basic and fundamental science. It is the study of energy, motion and matter. Physics explains ‘how things work’ and its understanding and application leads to the development of new technologies. You will learn how physics is applied in society and the environment. Physicists are problem solvers. The ability to think ‘outside the box’ makes people who have studied physics desirable in many career areas including all branches of engineering, telecommunications, medicine, computer science, astronomy and renewable energy.

# Course Content

The S3 Physics course consolidates level 3 experiences and outcomes, and extends learning to level 4 within the CFE areas of:

* Planet Earth – space
* Forces, Electricity and Waves – forces, electricity, vibrations and waves

The S3 Physics course comprises 3 units:

* Electricity and Energy (circuits, resistance, energy and power, electrical safety, electronics)
* Forces (speed, acceleration, forces, Newton’s laws, electromagnets, density)
* Waves (waves, electromagnetic spectrum, sound)

# Skills

The S3 Physics course will help you to continue to develop a secure knowledge and understanding of the big ideas and concepts of the sciences. Studying Physics you will continue to build your practical and investigative skills and have lots of opportunities to develop and use your numeracy skills. You will have opportunity to improve your scientific literacy skills, developing your knowledge of scientific language and the ability to express informed opinions on scientific issues.

# Course Assessment

You will receive informal feedback throughout your learning and throughout each topic will complete small check tests, with a larger formal assessment at the end of each unit. Learning activities and assessments are differentiated to two levels – *diamond* and *triangle*. *Diamond* learning intentions, activities and assessments are based on level 4 outcomes and require mathematical skills such as re-arranging formulae in symbol form, converting multiples of units (e.g. mA to A), and use of scientific notation.

# Progression

The course is designed to cover the necessary level 4 learning pre-requisite for success in National 5 Physics. It also supports consolidation of level 3 outcomes for pupils at this stage in their learning.

Progression may therefore be to

* National 4 Physics (generally suitable for learners undertaking *triangle* activities)
* National 5 Physics (generally suitable for learners achieving success in *diamond* assessments)
* National 4 Chemistry or Biology
* Progress to National 5 Chemistry or Biology in one year may be possible for pupils who achieve level 4 Physics in S3, however since these courses build on the work covered in S3/National 4 this requires a significant commitment to additional personal study if pupils have not studied these subjects in S3.

# Career Pathways

Astronaut Astronomer AR/VR programmer CAD technician Doctor Dentist Engineer Engineering technician Electrician Geoscientist Mechanic Medical Physicist Meteorologist Naval Architect Optician Prosthetist Oceanographer Pilot Radiographer Physiotherapist Surveyor Vet