

Higher 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. Studying physics allows you to gain an insight into the underlying nature of our world and its place in the universe. Physicists are problem solvers and play a key role in meeting society's needs in areas such as engineering, medicine, energy, telecommunications, material development, astronomy, the environment and sustainability.

Course Content

The Higher physics course develops learners' curiosity, interest and enthusiasm for physics. The relevance of physics is highlighted by the study of the applications of physics in everyday contexts.

The course has **four main areas**:

Physics: Our Dynamic Universe - In this area you will learn about the key areas of kinematics, dynamics and space-time including motion (equations and graphs), forces, energy and power, collisions, explosions, and impulse, gravitation, special relativity and the expanding Universe

Physics: Particles and Waves - In this area you will investigate the key areas of particles and waves. This will include forces on charged particles, the Standard Model, nuclear reactions, inverse square law, wave-particle duality, interference, spectra and the refraction of light.

Physics: Electricity - In this area you will investigate the key areas of electricity, and electrical storage and transfer. Topics covered are:

- monitoring and measuring AC,
- current, potential difference, power and resistance,
- electrical sources and internal resistance
- capacitors
- semiconductors and p-n junctions

Researching Physics – developing scientific inquiry and investigative skills

Skills

Studying Physics will help you to develop your logical and critical thinking, solve problems and make decisions. Throughout the course you will have opportunity to extend your practical and investigative skills, including analysis of data and evaluation of methods.

Course Assessment

The course assessment has two components: a question paper (80%) and an assignment. In this part of your course assessment you will carry out an investigation, analyse results and communicate your findings. (20%). Both parts, question paper and assignment-the report on your practical investigation will be marked by the Scottish Qualifications Authority (SQA). The course assessment is graded A–D.

Progression

If you complete the course successfully, it may lead to Advanced Higher Physics or further study (HNC, HND, degree), training or employment in engineering, science, mathematics or health and medicine.

Career Pathways

Air Traffic Controller	Astronaut	Astronomer	CAD technician	Doctor
Dentist	Engineer	Ergonomist	Medical Physicist	Physiotherapist
Meteorologist	Pilot	Minerals Surveyor	Neuroscientist	Optician
Radiographer	Textile technologist	Teacher	Technical author	Veterinary surgeon