

Physics : HIGHER

Why Physics?

The Higher Physics Course allows learners to understand and investigate the world in an engaging and enjoyable way. It develops learners' ability to think analytically, creatively and independently, and to make reasoned evaluations. The Course provides opportunities for learners to acquire and apply knowledge, to evaluate environmental and scientific issues, to consider risk, and to make informed decisions. This can lead to learners developing an informed and ethical view of complex issues. Learners will develop skills in communication, collaborative working and leadership, and apply critical thinking in new and unfamiliar contexts to solve problems.

Entry to the Course

This is at the discretion of the school but you would normally be expected to have attained one of the following:

- National 5 Physics at A-C pass
- Candidates with good National grades in Maths, Chemistry and Biology but no National 5 Physics may also be considered.

Course Outline

Physics : Higher

Our Dynamic Universe

This unit involves study of **Kinematics**

- ◆ motion (equations and graphs)

Dynamics

- ◆ forces, energy and power
- ◆ collisions, explosions and impulse
- ◆ gravitation

Space-time

- ◆ special relativity
- ◆ the expanding universe

Particles and Waves

This unit involves study of

- ◆ the standard model
- ◆ forces on charged particles
- ◆ nuclear reactions

Waves

- ◆ wave particle duality
- ◆ interference and diffraction
- ◆ refraction of light
- ◆ spectra

Electricity

This unit involves the study of **Electricity**

- ◆ monitoring and measuring a.c.
- ◆ current, potential difference, power and resistance
- ◆ electrical sources and internal resistance

Electrical storage and transfer

- ◆ capacitors
- ◆ conductors, semiconductors and insulators
- ◆ p-n junctions

Developing skills for learning, skills for life and skills for work

Learners are expected to develop broad generic skills as an integral part of their learning experience. For this course, it is expected that the following skills for learning, skills for life and skills for work will be significantly developed:

- Literacy
- Numeracy – number processes, money, time and measurement, information handling
- Thinking skills – applying, analysing and evaluating, creating
- Working with others
- Citizenship

Assessment

The course is assessed by a combination of internal assessment by the teacher/lecturer and an external examination and assignment, set and marked by the SQA.

Progression

Successful completion of this course may lead to:

Advanced Higher in

- Physics

Education (HNC/HND/Degree);

Employment in

- Engineering
- Manufacturing Industries
- Science & Mathematics
- Medicine
- Finance

Further advice and information on these options is available from your Subject Teacher, Home Area Principal Teacher and Careers Adviser.