

# IB PHYSICS

## Entry Requirements

Boys wishing to study Higher Level Physics must attain a minimum of a grade 7 at IGCSE/GCSE in both Maths and Physics (or 87 if studying Double Award Science) and given the mathematical demands of this course it would be advantageous (but not compulsory) to also study HL Maths. Boys wishing to study Standard Level Physics are required to get a minimum of a grade 6 at IGCSE/GCSE Physics (or 66 if studying Double Award Science).

## Introduction

Physics is viewed as the fundamental science which attempts to explain all observations of the natural and physical world in terms of laws related to matter and energy. Students are made aware of the connections between the domains of physical laws, experimental skills and social and historical aspects of physics.

The course has a highly mathematical emphasis, where derivations are expected and a high degree of mathematical problem solving required in examination questions.

## Syllabus content

SL and HL students study the following core subjects:

HL students will cover the following additional material:

Core material
Measurements and Uncertainties
Mechanics
Thermal physics

Waves
Electricity and magnetism
Circular motion and gravitation
Atomic, nuclear and particle physics
Energy production

HL students will cover the following additional material:

AHL material
Wave phenomena
Fields
Electromagnetic induction
Quantum and nuclear physics

SL and HL students will then study one option topic from:

Options (HL options contain extra material)
Relativity
Engineering physics
Imaging
Astrophysics

## External Assessment

The assessment structure is almost identical for SL and HL and is broken down as follows:

20% from Internal Assessment (externally moderated)

80% from three written examinations:

- Paper I: Multiple choice questions (20%)

- Paper 2: Short answer and extended response questions on Core (HL - 36%, SL – 40%)
- Paper 3: Short answer and data analysis questions on compulsory experiments plus short answer and extended response questions on the Option material (HL - 24%, SL - 20%).

All IB students are required to complete a “Group 4” project, during which they collaborate with other IB science students. Throughout the programme, their personal skills, ability to work independently and awareness of wider ethical aspects of the subject are assessed.

### Internal Assessment

SL and HL students will have assessed coursework based on a single 10 hour individual investigation, which will result in a formal submitted report and is worth 20% of final grade. Students are required to research, plan and carry out an investigation which is assessed internally on the following criteria: Personal engagement, Exploration, Analysis, Evaluation, Communication.

In addition, HL students are expected to carry out 60 hours of practical work throughout the course, SL students are expected to carry out 40 hours. This includes a list of set experiments related to the programme of study which students must perform and may also be questioned on in examinations.