

# IB Physics

## HIGHER AND STANDARD LEVEL

### *What are the aims of the course?*

The aims of the IB physics course are to enable students to:

- Appreciate scientific study and creativity within a global context through stimulating and challenging opportunities
- Apply and use a body of knowledge, methods and techniques that characterise science and technology
- Develop experimental and investigative scientific skills including the use of current technologies
- Develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge

### *What does it involve?*

While there are core skills and activities common to both SL and HL, students at HL are required to study material in greater depth, and topics of a more demanding nature.

- Core topics covered include: Measurements and Uncertainties; Mechanics; Thermal Physics; Waves; Electricity and Magnetism; Circular Motion and Gravitation; Atomic, Nuclear and Particle Physics; Energy Production
- Additional Higher Level topics include: Wave Phenomena; Fields; Electromagnetic Induction; Quantum and Nuclear Physics
- Option topics include: Relativity; Engineering Physics; Imaging; Astrophysics (choice of one out of four)

A collaborative activity allows for concepts and perceptions from across disciplines to be shared while appreciating the environmental, social and ethical implications of science and technology. It can be practically or theoretically based and aims to develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge. The emphasis is on interdisciplinary cooperation and the scientific processes.

## How is it assessed?

### External assessment details—SL

- **Paper 1** – Duration: 3/4 hours; Weighting: 20%; Marks: 30  
30 multiple-choice questions on core, about 15 of which are common with HL.
- **Paper 2** – Duration: 1 hour 15 minutes  
Weighting: 40%; Marks: 50  
Short-answer and extended-response questions on core material.
- **Paper 3** – Duration: 1 hour; Weighting: 20%; Marks: 35  
This paper will have questions on core and SL option material.

### External assessment details—HL

- **Paper 1** – Duration: 1 hour; Weighting: 20%; Marks: 40  
40 multiple-choice questions, about 15 of which are common with SL.
- **Paper 2** – Duration: 2 hours 15 minutes; Weighting: 36%; Marks: 95  
Short-answer and extended-response questions on the core and AHL material.
- **Paper 3** – Duration: 1 hour 15 minutes; Weighting: 24%; Marks: 45  
This paper will have questions on core, AHL and option material.

### Internal assessment details

Duration: 10 hours; Weighting: 20% An individual investigation

The new assessment model uses five criteria to assess the final report of the individual investigation with the following raw marks and weightings assigned:

Personal engagement	8%
Exploration	25%
Analysis	25%
Evaluation	25%
Communication	17%

## Are there any specific entry requirements?

**Physics Higher Level:** Students should have gained a grade A or equivalent at iGCSE/GCSE and have a natural aptitude for mathematics. This course goes well beyond A Level Physics and requires higher level maths skills.

**Physics Standard Level:** Students should have gained a Level 6 or equivalent at Higher Tier iGCSE/GCSE Physics and Maths. This course goes well beyond AS level Physics and is much closer to A Level Physics in level of difficulty and content covered.

## Why is it a useful qualification?

A qualification in Physics is essential for many branches of engineering and recommended for courses in Pure Science, Electronics, Veterinary Science and Medicine. It is also an excellent preparation for many other careers not so obviously related.

Physics is also classed as a facilitating subject by the Russell Group that represents 24 leading UK Universities. Facilitating subjects are the subjects most commonly required or preferred by universities to get on to a range of degree courses. They can help students keep their options open when choosing a degree and many of the top universities will ask you to have at least one qualification in a facilitating subject when you apply.

