

GROUP 4 - PHYSICS SL/HL

NATURE OF THE SUBJECT

Physics is the most fundamental of the sciences: it seeks to explain the universe from the smallest particles to the galaxies.

The course allows students to develop practical skills and increase their mathematics abilities. It also allows students to develop digital communication skills which are essential in modern scientific endeavour and are transferable skills in their own right.

"Physics Guide. First Assessment 2016." *Ibo.org*. IBO, 2015. Web. 12 Sept. 2017.

AIMS

- appreciate scientific study and creativity within a global context through stimulating and challenging opportunities
- acquire a body of knowledge, methods and techniques that characterize science and technology
- apply and use a body of knowledge, methods and techniques that characterize science and technology
- develop an ability to analyse, evaluate and synthesize scientific information
- develop a critical awareness of the need for, and the value of, effective collaboration and communication during scientific activities
- develop experimental and investigative scientific skills including the use of current technologies
- develop and apply 21st-century communication skills in the study of science
- become critically aware, as global citizens, of the ethical implications of using science and technology
- develop an appreciation of the possibilities and limitations of science and technology
- develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge.

"Physics Guide. First Assessment 2016." *Ibo.org*. IBO, 2015. Web. 12 Sept. 2017.

SYLLABUS – OUTLINE

(The syllabus is subject to changes according to the needs and preferences of the class)

Year 1

- Core Topic 1: Measurement and uncertainties
 - Core Topic 2: Mechanics
 - Core Topic 4: Waves
 - AHL Topic 9: Wave Phenomena (HL only)
 - Core Topic 5: Electricity and Magnetism
 - AHL Topic 11: Electromagnetic Induction (HL only)
 - Core Topic 3: Thermal Physics
 - Core Topic 6: Circular Motion and Gravitation
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Year 2
<ul style="list-style-type: none"> • AHL Topic 10 Fields (HL only) • Core Topic 7: Atomic, Nuclear and Particle Physics • AHL Topic 12: Quantum and nuclear Physics (HL only) • Core Topic 8: Energy production • Option D: Astrophysics (10 hours out of 25, HL only)

ASSESSMENT – OUTLINE

Assessment component	Weighing
<p>External assessment SL</p> <p>Paper 1 (45 min)</p> <ul style="list-style-type: none"> • 30 multiple-choice questions on core <p>Paper 2 (75 min)</p> <ul style="list-style-type: none"> • Short-answer and extended-response questions on core material. <p>Paper 3 (60 min)</p> <ul style="list-style-type: none"> • Section A: one data-based question and several short-answer questions on experimental work. • Section B: short-answer and extended-response questions from the option. 	<p>20%</p> <p>40%</p> <p>20%</p>
<p>External assessment HL</p> <p>Paper 1 (60 min)</p> <ul style="list-style-type: none"> • 40 multiple-choice questions on core and AHL material. <p>Paper 2 (135 min)</p> <ul style="list-style-type: none"> • Short-answer and extended-response questions on the core and AHL material. <p>Paper 3 (75 min)</p> <ul style="list-style-type: none"> • Section A: one data-based question and several short-answer questions on experimental work. • Section B: short-answer and extended-response questions from the option. 	<p>20%</p> <p>36%</p> <p>24%</p>
<p>Internal assessment</p> <p>The externally-moderated Internal Assessment task will be one scientific investigation taking about 10 hours. The work should be about 6 to 12 pages long. The task produced should be complex and commensurate with the level of the course.</p>	<p>20%</p>