

A-level Physics at Latymer

Entry Requirements

- ▶ **GCSE; Physics, Chemistry, Biology single sciences OR Combined Science, (2 grade 7s or better).**
- ▶ **OCR 21st Century Science is not best preparation (need to do some catch up during the summer)**
- ▶ **Maths: grade 7 or better**
- ▶ **A Level maths course? Very helpful but not essential. 40% of marks on exams will be mathematical**

Reasons for taking Physics

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- ▶ You gain a deeper understanding of how the world around you functions and why certain things happen.
- ▶ Allows you to use and develop mathematical skills and logical problem-solving skills
- ▶ You enjoyed it at GCSE
- ▶ It is necessary for certain career paths
- ▶ It is complimentary with Maths A-level
- ▶ To provide variation with your other A-level subjects, contrasting with humanities / essay-based subjects

GCSE vs A-level

- ▶ **Greater depth of understanding needed**
- ▶ **Greater level of precision/accuracy in calculations and explanations required**
- ▶ **Greater emphasis on developing practical skills in terms of using unfamiliar equipment, recording and processing data, and doing research**
- ▶ **Top grades will require you to apply newly learned concepts in new and unfamiliar contexts**

Starting Year 12



1 teacher for each set and generally 5 Sets of between 15 – 20 students.



General introduction topic on units and prefixes, calculating uncertainties, types of errors, graphical skills



Students will gain practical experience of using unfamiliar measuring instruments.

**What
happens
later in
the first
term ?**

**Students then study
Mechanics
(Resultant forces,
Newton's laws,
projectiles motion,
momentum, energy
and power) and
Materials (Density,
elasticity, Young
Modulus.)**

Spring and Summer term:

- **Electricity (electrical circuits and components, resistivity, internal resistance)**
- **Waves (Longitudinal and transverse waves, stationary waves, diffraction and interference, total internal reflection).**
- **Particles and Quantum Phenomena (Subatomic particles, the nucleus, particles and antiparticles, quarks, hadrons and leptons, the Photoelectric Effect, energy levels, photons, wave/particle duality)**

Assessment

Students are formally assessed throughout the year via mid and end-of-topic tests.

Students are informally assessed every lesson via teacher questioning, peer and self-assessment, etc.

Practical work



Theory is underpinned by practical experience and investigation throughout the year.

For the A2 course you will complete 12 required practical experiments and you will have to show that through these practicals (and others) you have shown competence in 5 core skills – which can be summarised as:

- a) Following written instructions**
- b) Planning an investigation/experiment**
- c) Ensuring safety when carrying out investigations/experiments**
- d) Making accurate measurements, producing accurate and precise data and recording it in accordance with scientific conventions**
- e) Processing the data and carrying out research to evaluate the results**

AS-level

Assessments

Paper 1

What's assessed

Sections 1–5

Assessed

- written exam: 1 hour 30 minutes
- 70 marks
- 50% of AS

Questions

70 marks of short and long answer questions split by topic.



Paper 2

What's assessed

Sections 1–5

Assessed

- written exam: 1 hour 30 minutes
- 70 marks
- 50% of AS

Questions

Section A: 20 marks of short and long answer questions on practical skills and data analysis

Section B: 20 marks of short and long answer questions from across all areas of AS content

Section C: 30 multiple choice questions

2nd Year Physics

Periodic motion (Circular motion and SHM), Fields (Gravitational, Electric and Magnetic) and Capacitance

Thermal Physics

Nuclear Physics

You will also study one of three Optional Topics :

- **Turning points in Physics**
- **Engineering Physics**
- **Astrophysics**

A-level

Assessments

Paper 1	+	Paper 2	+	Paper 3
What's assessed Sections 1–5 and 6.1 (Periodic motion)		What's assessed Sections 6.2 (Thermal Physics), 7 and 8 Assumed knowledge from sections 1 to 6.1		What's assessed Section A: Compulsory section: Practical skills and data analysis Section B: Students enter for one of sections 9, 10, 11, 12 or 13
Assessed <ul style="list-style-type: none">• written exam: 2 hours• 85 marks• 34% of A-level		Assessed <ul style="list-style-type: none">• written exam: 2 hours• 85 marks• 34% of A-level		Assessed <ul style="list-style-type: none">• written exam: 2 hours• 80 marks• 32% of A-level
Questions 60 marks of short and long answer questions and 25 multiple choice questions on content.		Questions 60 marks of short and long answer questions and 25 multiple choice questions on content.		Questions 45 marks of short and long answer questions on practical experiments and data analysis. 35 marks of short and long answer questions on optional topic.

	2019		2020		2021		2022	
Grade	No. of students	% of students	No. of students	% of students	No. of students	% of students	No. of students	% of students
A*	19	28.4	18	28.1	20	30.8	29	40.8
A* - A	38	56.8	37	57.8	43	66.2	55	77.5
A* - B	55	82.2	54	84.4	54	83.1	62	87.3
A* - C	62	92.6	61	95.3	63	96.9	67	94.4

A-level results over last 4 years

Destinations for those specialising in Physics/Engineering at University

Over 25 students deciding to study a Physics related subject at University.

2 students studying Engineering at Cambridge and 1 studying Natural Sciences at Cambridge

Most other students studying Physics with Theoretical Physics, Physics with Astrophysics, Mechanical Engineering etc, at the following Universities:

Bath, Leicester, Warwick, Birmingham, Durham, Imperial College, Manchester, York, and many more!