

IB DIPLOMA PROGRAMME · PHYSICS SL · STUDENT GUIDE

Your IB Physics SL game plan

How your grade is built, what you must master and how marks are awarded — the essentials, at a glance.

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1 How your final grade is built

Paper 1 · 36%

Paper 2 · 44%

IA · 20%

Paper 1

1 h 30 min · 45 marks

1A: 25 multiple-choice questions.

1B: data-based questions — graphs, units and uncertainties.

Paper 2

1 h 30 min · 55 marks

Short-answer and extended-response questions across all five themes. Marks reward the reasoning you show.

Internal assessment

10 hours · 24 marks

One scientific investigation, written up in at most 3,000 words. Marked by your teacher, moderated by the IB.

Data booklet provided in both papers

Calculator in both papers

Final grade 1–7 · exams in May of Year 2

2 What you must master: 19 topics

A Space, time and motion	☐ A.1 Kinematics ☐ A.2 Forces and momentum ☐ A.3 Work, energy and power
B The particulate nature of matter	☐ B.1 Thermal energy transfers ☐ B.2 Greenhouse effect ☐ B.3 Gas laws ☐ B.5 Current and circuits
C Wave behaviour	☐ C.1 Simple harmonic motion ☐ C.2 Wave model ☐ C.3 Wave phenomena ☐ C.4 Standing waves and resonance ☐ C.5 Doppler effect
D Fields	☐ D.1 Gravitational fields ☐ D.2 Electric and magnetic fields ☐ D.3 Motion in electromagnetic fields
E Nuclear and quantum physics	☐ E.1 Structure of the atom ☐ E.3 Radioactive decay ☐ E.4 Fission ☐ E.5 Fusion and stars

Not on your SL papers (HL only): A.4 Rigid body mechanics · A.5 Galilean and special relativity · B.4 Thermodynamics · D.4 Induction · E.2 Quantum physics. If a past paper question uses these, skip it.

+ skills

Across every topic you are also assessed on **tools and inquiry**: measuring, uncertainties, graphing and linearising data, and handling the equations in the data booklet. Practise them from week one.

3 The IA: 24 marks you control

One scientific investigation · 10 hours · report of at most 3,000 words · four criteria of 6 marks each. It is the only part of your grade settled before exam day — treat it as a head start.

6

Research design

A focused research question and a method described well enough for someone else to repeat it.

Tip: one independent and one dependent variable, everything else controlled.

6

Data analysis

Clear, accurate processing of raw data, with uncertainties carried through to tables and graphs.

Tip: error bars and a gradient with its uncertainty beat extra repeats.

6

Conclusion

An answer to your research question, justified by your data and compared with accepted physics.

Tip: quote your numbers and say how far they are from theory.

6

Evaluation

Strengths and weaknesses of your method, their effect on the result, and realistic improvements.

Tip: link every weakness to the data it actually affected.

4 Your two years at a glance

Typical plan · your school sets exact dates

Year 1 · build the foundations

Autumn	First themes begin. Master units, significant figures and graphs early.
Spring	Practical work and data analysis. Start a mistake log for every test.
Summer	Shortlist two or three IA ideas and discuss them with your teacher.

Year 2 · deliver

Autumn	Carry out and write up your IA. Meet every draft deadline.
Winter	Mock examinations: full papers, timed, then review every lost mark.
May	Final examinations: Paper 1 and Paper 2.

Also required: the Collaborative Sciences Project (10 hours) — an interdisciplinary team project with students from other sciences. It is not graded, but you must complete it.

5 Six habits that earn marks

Obey the command term

"State" wants a fact, "Explain" a cause, "Determine" a number with working.

Show every step

In Paper 2 a correct method can still earn marks when the final answer is wrong.

Units and significant figures

Every final answer carries a unit; match its precision to the data given.

Know your data booklet

Find any equation in seconds — and learn what is not in it.

Paper 1A: reason first

Eliminate options with physics and extreme cases before you calculate.

Paper 1B: practise new data

Gradients, intercepts, error bars and linearising graphs — on data you have never seen.

Stuck on a topic or your IA?

One-to-one IB Physics support with Evan Kotronis at ExaminerPrep.

examinerprep.com

Source: IB Physics guide, first assessment 2025. Your school sets internal deadlines.

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