



Kimberley  
School

Science

# Sixth Form

**AS/A2 Level**

**2016-2018**

**Physics**

## What is Physics?

Physics is the study of matter and energy. Through understanding them and how they interact, Physics sets out to explain how the world we live in works. In a world where technology is advancing at a rapid rate, Physics lets you understand the basic ideas behind it all.

## Who is it for?

Some students may wish to use the AS GCE in order to broaden their curriculum, where others will complete the two year course which will prepare them to progress into further education to follow courses in physics, engineering, or any of the scientific subjects. You should have an A or B grade in Science or Physics GCSE. A minimum of a B grade in Mathematics is also required.

## The A level Reform

Starting in September 2015, the system of Science A Levels (biology, chemistry, physics) in England and Wales underwent radical change, with the government replacing the AS/A2 system which has been in existence since 2000.

How will the new A Level system be different from the present one?

Science A-Levels have moved to a linear structure where all the work completed in Year 12 and 13 will be examined at the end of Year 13.

The AS examination will still exist, but the marks will not count towards the final grade as is currently the case.

The AS, therefore, will become a stand-alone qualification taken at the end of Year 12.

This means that if a student sits the AS Level exam at the end of Year 12, and then continues his studies to A-level qualification, the AS grade will become redundant and the student will be assessed on all of the first year modules again in the A-level exam.

Is there any point, therefore, in sitting the AS exam if a student has decided to continue to A-level?

The Kimberley School will enter its sixth form science students for the AS exam, irrespective of whether the student will continue the course to A-level.

There are two main reasons for this:

1. the student will gain invaluable experience in sitting real public exams
2. the grade achieved will be a true indicator of progress made and therefore will be a deciding factor on whether the student is invited to continue onto the A-level course.

The course is made up of:

## AS Level Physics

### Module 1: Development of Practical Skills in Physics

This module covers the practical skills that students will develop throughout the course. The practical skills in this module can be assessed within written examinations

### Module 2: Foundations in Physics

*Includes:*

- S.I. units
- Scalars and vectors

### Module 3: Forces and motion

*Includes:*

- Motion
- Forces in action
- Work, energy and power
- Materials
- Laws of motion and momentum

### Module 4: Electrons, waves and photons

*Includes:*

- Charge and current
- Electric circuits
- Energy, power and resistance
- Wave behaviour
- Quantum physics

## How will you be assessed?

AS Papers 1 and 2 can assess any content from Modules 1 to 4 above

Paper		Marks	Duration	Weighting
Paper 1	<b>Breadth in physics</b> Content – Modules 1, 2, 3, 4	70	1 hr 30 mins	50%
	Section A – Multiple choice	20		
	Section B – Structured questions, covering theory and practical skills	50		
Paper 2	<b>Depth in physics</b> Content – Modules 1, 2, 3, 4	70	1 hr 30 mins	50%
	Structured questions and extended response questions covering theory and practical skills	70		

# A Level Physics

Modules 1 – 4. Same as for AS Level

## Module 5: The Newtonian world and astrophysics

*Includes:*

- Thermal physics
- Oscillations and circular motion
- Gravitational fields
- Astrophysics and cosmology

## Module 6: Particles and medical physics

*Includes:*

- Capacitors
- Electric fields
- Electromagnetism
- Nuclear and particle physics
- Medical physics

## How will you be assessed?

Paper		Marks	Duration	Weighting
Paper 1	<b>Modelling physics</b> Content – Modules 1, 2, 3, 5	<b>100</b>	2 hr 15 mins	37%
	Section A – Multiple choice	15		
	Section B – Structured questions, covering theory and practical skills	85		
Paper 2	<b>Exploring physics</b> Content – Modules 1, 2, 4, 6	<b>100</b>	2 hr 15 mins	37%
	Section A – Multiple choice	15		
	Section B – Structured questions, covering theory and practical skills	85		
Paper 3	<b>Unified physics</b> Content – all modules	<b>70</b>	1 hr 30 mins	26%
	Structured questions and extended response questions covering theory and practical skills	70		

## Practical endorsement for Physics

In addition to the 3 written exam papers, candidates complete a minimum of 12 practical activities throughout the two years to demonstrate practical competence. The performance is reported separately from the A-level grade as a pass/fail by the teacher.

**See Miss E. Iwanczuk for further details.**