Physics at Norbury High

Overview

Physics at A level is an information-rich course designed to develop theoretical and practical scientific skills, knowledge and understanding. It offers exciting insights into the contemporary world of science. Physics is a multidisciplinary subject that is made up of many different and interdependent fields.

Students study Physics in a range of different contexts, including aspects of industrial and everyday life, which requires them to investigate and solve problems. This subject offers real potential for progression onto a wide range of university degrees leading to a wide range of careers.

KS5 A Level Physics

Students will sit two AS examinations at the end of year 12 (AQA 7407/1) and three A2 examinations at the end of year 13 (AQA 7408/1).

Year 12

- 1 Measurements and their errors
- 2 Particles and radiation
- 3 Waves
- 4 Mechanics and materials
- 5 Electricity

Year 13

- 6 Further mechanics and thermal physics
- 7 Fields and their consequences
- 8 Nuclear physics
- 12 Turning points in physics

Students will sit two AS examinations at the end of Year 12 (AQA 7407) and three A2 examinations at the end of Year 13 (AQA 7408).

Below is a list of the 12 required practicals and the corresponding apparatus and techniques.

Number	Required Practical Activity	Apparatus and technique reference
1	Investigation into the variation of the frequency of stationary waves on a string with length, tension and mass per unit length of the string.	a, b, c, i

2	Investigation of interference effects to include the Young's slit experiment and interference by a diffraction grating.	a, j
3	Determination of g by a free-fall method	a, c, d, k
4	Determination of the Young modulus by a simple method.	a, c, e
5	Determination of resistivity of a wire using a micrometer, ammeter and voltmeter.	a, b, e, f
6	Investigation of the emf and internal resistance of electric cells and batteries by measuring the variation of the terminal pd of the cell with current in it.	b, f, g
7	Investigation into simple harmonic motion using a mass–spring system and a simple pendulum.	a, b, c, h, i
8	Investigation of Boyle's (constant temperature) law and Charles's (constant pressure) law for a gas.	a
9	Investigation of the charge and discharge of capacitors. Analysis techniques should include log-linear plotting leading to a determination of the time constant RC.	b, f, g, h, k
10	Investigate how the force on a wire varies with flux density, current and length of wire using a top pan balance.	a, b, f
11	Investigate, using a search coil and oscilloscope, the effect on magnetic flux linkage of varying the angle between a search coil and magnetic field direction.	a, b, f, h
12	Investigation of the inverse-square law for gamma radiation.	a, b, k, l

Physics Apparatus and Techniques

	Apparatus and techniques
AT a	use appropriate apparatus to record a range of quantitative measurements (to include mass, time, volume, temperature, length and pH)
AT b	use appropriate instrumentation to record quantitative measurements, such as a colorimeter or potometer
AT c	use laboratory glassware apparatus for a variety of experimental techniques to include serial dilutions
AT d	use of light microscope at high power and low power, including use of a graticule
AT e	produce scientific drawing from observation with annotations
AT f	use qualitative reagents to identify biological molecules
AT g	separate biological compounds using thin layer/paper chromatography or electrophoresis
AT h	safely and ethically use organisms to measure: ● plant or animal responses ● physiological functions
AT i	use microbiological aseptic techniques, including the use of agar plates and broth

AT j	safely use instruments for dissection of an animal organ, or plant organ
AT k	use sampling techniques in fieldwork
AT l	use ICT such as computer modelling, or data logger to collect data, or use software to process data