Physics

Examination Board: AQA

Examination Code: 7408

Outline of the Course	A Level Physics takes students into the heart of the most fundamental concepts in science. Studying Physics can see students grasping the scope of massive galaxies or probing the tiniest component particles of atoms. Physics is the study of how everything works as well as the basic rules of the universe and is full of challenges and opportunities. It is a problem-solving subject at its core. **Topics studied in Year 12 (in order)** **Teacher 1:** • Mechanics • Waves **Teacher 2:** • Particles and Radiation • Electricity **Topics studied in Year 13 (in order)** **Teacher 1:** • Periodic Motion • Electric Fields and Capacitance • Gravitational Fields **Teacher 2:** • Thermal Physics • Nuclear Physics and Radioactivity

What will you learn?

A Level Physics at Stretford Grammar School covers fundamental physical concepts and their applications in everyday and technological contexts. Year 1 focuses on mechanics, materials, electricity, waves, and particles and radiation. Year 2 builds on this with further mechanics, thermal physics, fields, nuclear physics, and an option module, often astrophysics or engineering. Practical skills are embedded throughout, with a focus on planning, implementing, analysing, and evaluating experiments.
During the course students have a two weekly assessment cycle which helps them structure their revision.

More detail on the units of work is shown below**:**

First Year of A Level:

1. Measurements and their errors, including: use of SI units and their prefixes, limitations of physical measurement, estimation of physical quantities

2. Particles and radiation, including: constituents of the atom, particle interactions, collisions of electrons with atoms

3. Mechanics, materials and energy, including: projectile motion, Newton's laws of motion

4. Waves, including: progressive waves, interference, diffraction

5. Electricity, including: current/voltage characteristics, circuits, electromotive force and internal resistance

Second year of A Level

6. Further mechanics and thermal physics, including: periodic motion, thermal energy transfer, molecular kinetic theory model

7. Fields, including: Gravitational fields, orbits of planets and satellites, magnetic fields, electric fields and capacitance.

8. Nuclear physics, including: evidence for the nucleus, radioactive decay, nuclear instability, nuclear reactors

Option Module: Astrophysics, Engineering Physics, Medical Physics, Turning Points in Physics or Electronics, your choice.

- There is no coursework on this course. However, students' performance during a series of required practical experiments will be assessed which results in a practical endorsement.

Mark Breakdown and Assessment

There are three exams at the end of the two years for A Level, all of which are two hours long. 15% of the marks for A Level Physics are based on experimental techniques developed in students' practical work.

Paper 1	Paper 2	Paper 3
Content • Topics 1-5 • and 6 periodic motion Assessment • Written exam: 2 hours • 85 marks • 34% of A-level Questions • 60 marks: a mixture of short and long answer questions • 25 marks: multiple choice questions	Content • Topics 7 – 9 Assessment • Written exam: 2 hours • 85 marks • 34% of A-level Questions • 60 marks: a mixture of short and long answer questions • 25 marks: multiple choice questions	Content • Practical skills • Data analysis • Option topic Assessment • Written exam: 2 hours • 80 marks 32% of A-level Questions • 45 marks: questions on practical experiments and data analysis • 35 marks: questions on optional topic

Website links

https://www.aqa.org.uk/subjects/physics/a-level/physics-7408/specification/specification-at-a-glance

Key Dates

Exams: May/June Year 13

Further Information

Mr. S. Chillingworth – Curriculum Leader for Physics
Mr. C. Drayton – Subject Teacher for Physics
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What can I do after I have completed the course?	Studying Physics gives a student skills that are useful to many employers, not just in the science sector. As a problem solving subject it shows that you have the ability to solve challenges by thinking creatively. The practical skills gained through planning experiments will also be appreciated by a variety of employers. - Physics is a "facilitating subject", meaning that it's highly regarded whatever degree or career path you choose. It's considered essential for science and engineering courses, so it keeps a lot of doors open for you. - Physics opens these doors because of the skills and ways of thinking it teaches you. You'll pick up mathematical and analytical techniques that are valued in a huge range of careers. You'll become a critical and creative thinker, and a problem solver. There are a number of physics-based careers; Astronomy, Education, Engineering, Medicine, Meteorology and climate change, Nanotechnology, Oil and gas, Renewable energy, Scientific research, Space exploration industries, Telecommunications But as previously mentioned many physicists use their skills in other careers outside of science: Physics graduates are particularly attractive to companies outside the scientific industries because of their skills in analysing information and solving complex problems, and their high levels of numeracy and computer literacy.