

Post 16 Applied science Curriculum Plan 2024-2026

Applied science 1

Year 1

Unit 1 – Principles and applications of science I

Written Exam

In this unit, you will build on the knowledge you gained at GCSE. You will explore the biology of cells and tissues, the chemistry of atomic structure and bonding, and the physics of waves and their application in communications. The knowledge and understanding from this unit will provide a strong basis for you to progress in the science sector.

Unit 2 – Practical scientific procedures and techniques

Coursework

This unit introduces you to standard laboratory equipment and techniques, including titration, colorimetry, calorimetry, chromatography, calibration procedures and laboratory safety.

Through the practical tasks in the unit, you will develop proficiency in the quantitative analytical techniques of titration and colorimetry, including learning to calculate the concentration of solutions.

Year 2

Unit 3 – Science investigation skills

Practical exam

In this unit, you will cover the stages involved and the skills needed in planning a scientific investigation: how to record, interpret, draw scientific conclusions and evaluate. You will develop the essential skills underpinning practical scientific investigations. As well as drawing on Unit 1 and Unit 2, these skills will be delivered through subject themes ranging from enzymes and diffusion to electrical circuits.

Unit 23 – Forensic evidence, collection and analysis

Coursework

In this unit, you will develop an understanding of the importance of health and safety, and the need for objectivity and justification in your approach to the identification, collection and analysis of forensic evidence. You will take part in a simulated crime scene investigation and be expected to demonstrate appropriate forensic techniques to process the scene, collecting biological, chemical and physical evidence. You will be required to document and package all evidence to provide a chain of continuity.

Applied science 2

Year 1

Unit 4 – Laboratory techniques and their application

Coursework

In this unit, you will investigate a scientific organisation to gain an understanding of how it operates. You will investigate health and safety practices in the organisation's laboratories and consider related primary and secondary legislation. You will also have the opportunity to compare the approach taken to hazards and risk management in different part of the organisation, for example production, the warehouse, the office.

Unit 6 – Investigative project

Coursework

In this unit, you will carry out an investigative project that you have chosen in collaboration with your teacher. You will choose one topic area that interests you and this will form the basis of your investigative project. You will carry out a scientific literature search and review, considering the project's aims and objectives, then produce a realistic plan and carry out the project safely using your scientific investigation skills, project management skills and what you have learnt from the other units.

Unit 21– Medical physics applications

Coursework

In this unit, you will gain an understanding of the physics that underpins the production of ionising and non-ionising radiation. This understanding will enable you to focus on a number of medical applications of physics and its importance in the diagnosis and treatment of patients. You will investigate and gain an understanding of a number of technological advances that have resulted in the use of faster, less-invasive and more effective diagnosis and treatment technologies.

Year 2

Unit 5 – Principles and applications of science II

Written Exam

This unit builds on and extends the range of key science concepts that you covered in unit 1. It will equip you with an understanding of the properties, uses and production of some inorganic compounds; structures, reactions and properties of commercially important organic compounds; enthalpy changes; the cardiovascular system; ventilation and gas exchange in the lungs; urinary system structure and function; cell transport mechanisms; thermal physics; physical properties of materials; and fluids in motion.

Unit 7 – Contemporary issues in science

Written exam

In this unit, you will explore contemporary science issues and their impact on the world we live in, developing your skills of analysis and interpretation. You will consider a range of contemporary science issues from advances in medical treatments, including stem cell therapy and genetic engineering, to developments in nanotechnology and food technology. You will look at the environmental, ethical, moral, social, political and/or financial impact of these developments, including their potential benefits, disadvantages and risks.

Unit 26– Forensic traffic collision investigation

Coursework

This unit examines the role of the traffic collision investigator, focusing primarily on road collisions. A collision is an unexpected event that occurs without apparent or deliberate cause, but which has marked effects. The investigator will gather evidence from the site of the crash that will enable them to piece together the sequence of events that led to the collision. From this, they are able to say how the collision happened, what caused it and whether anyone is to blame.