

# APPLIED SCIENCE

Exam board: Pearson



## Aims of the Course

The BTEC Level 3 National Extended Certificate in Applied Science is equivalent to one A Level in size and is designed for students who are interested in learning about the Science sector alongside other fields of study, with a view to progressing to a wide range of higher education courses and employment, not necessarily in applied science. The qualification is equivalent in size to one A-level and the content has been developed in consultation with academics, employers and professional bodies to ensure that it supports progression to higher education and prepares learners planning on entering employment directly in the applied science sector.

The qualification carries UCAS points and is recognised by higher education providers as contributing to meeting admission requirements for many courses if taken alongside other qualifications as part of a two year programme of learning.

## Types of Learning Experiences:

### Structure of the course:

The course is made up of four units, three of which are mandatory and one which is optional.

### Unit 1: Principles and Applications of Science

Scientists and technicians working in science and science-related organisations must have a good understanding of core science concepts. A strong grasp of these concepts will enable students to use and apply this knowledge and understanding in vocational contexts when studying other units within this specification.

The topic areas covered in this unit include: animal and plant cells; tissues; atomic structure and bonding; chemical and physical properties of substances related to their uses; waves and their application in communications.

Assessment is external, and takes the form of a 2 hour, 90 mark written examination set and marked by the exam board.

### Unit 2: Practical Scientific Procedures and Techniques

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. You will use measurement of temperature to study cooling curves and be introduced to paper and thin-layer chromatography (TLC). You will also have the opportunity to calibrate equipment and will be encouraged to be aware of the safety aspects of given laboratory procedures and techniques.

Assessment is internal through assignments set and assessed by your teachers in college.

### Unit 3: Science Investigation Skills

In this unit, 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. The subject themes provide different contexts for the development of the investigative skills. To complete the assessment task within this unit, students will need to draw on their learning from across your programme.

Science investigative skills will help students in many scientific or enquiry-based learning courses in higher education, as well as prepare students for employment in a science-related industry.

Assessment is external, and takes the form of a 2-part task, set and marked by the exam board and completed under supervised conditions. Students complete a practical investigation which assesses the skills learnt in the unit through the context of the content areas, drawing on the knowledge and practical techniques they will have met in Unit 1 and Unit 2.



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## **Unit 4: Optional**

The final unit is chosen from the following list:

1. Physiology of Human Body Systems
2. Human Regulation and Reproduction
3. Biological Molecules and Metabolic Pathways
4. Genetics and Genetic Engineering
5. Diseases and Infection
6. Applications of Inorganic Chemistry
7. Applications of Organic Chemistry
8. Electrical Circuits and their Application
9. Astronomy and Space Science

Assessment is internal through assignments set and assessed by your teachers in college.

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## **Transferable knowledge and skills**

The qualification is valued by employers and higher education providers because it develops interpersonal, intrapersonal, cognitive and problem-solving skills. Students will also have the opportunity to grow and demonstrate the ability to learn independently, to research actively and methodically, and to give presentations and work as part of a group

## **Entry requirements:**

**A minimum of 5 GCSE grades** at 9-4 including English and Maths is required along with a grade 5 in Science.

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