



# BTEC Level 3 Nationals Extended Certificate and Foundation Diploma in APPLIED SCIENCE

## Examination Board

- Edexcel

## Extended Certificate

The Extended Certificate is the equivalent of one A Level and is made up of four units which include the 'mandatory' units 1, 2 and 3 plus one other 'option unit' depending on staff expertise (currently unit 10). The four units will be studied over the 2 years.

### Unit 1 Principles and Applications of Science

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 will be three 40-minute exams that are set and marked by Pearson. You will be asked to respond to a range of different question types, including multiple-choice, calculations, short-answer, and extended open-response questions demonstrating your knowledge and understanding of key areas of science.

### 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.

Assessment will consist of completing an assignment brief where you will carry out tasks, creating evidence to support a work-related scenario. This will be marked by your teacher.

### Unit 3 Science Investigative Skills

This unit will develop the essential skills underpinning practical scientific investigations. As well as drawing on Units 1 and 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.

Assessment is by a 2 hour 15 minute exam consisting of:

**Part A:** 45 minutes reading time, studying a set of experimental data provided by the exam board.

**Part B:** 1 hour 30 minutes written task partly based on data from Part A and partly based on other experimental techniques and data gathering processes which have been studied in lessons.

### Option-Unit 10 Biological Molecules and Metabolic Pathways

This unit will focus on some of the chemical processes in living organisms, including respiration and photosynthesis and the factors that can affect these processes.

Assessment will consist of completing an assignment brief where you will carry out tasks, creating evidence to support a work related scenario. This will be marked by your teacher.



## Foundation Diploma

The Foundation Diploma is the equivalent of one and a half A Levels and is made up of 6 units which include the 'mandatory units' 1, 2 and 3 plus one other (currently unit 4), along with two 'option units', one of which will be the option unit studied for the Extended Certificate (currently unit 10) and the other is currently unit 9. The six units will be studied over the two years. Details of units 1, 2 and 3 along with the option unit 10 are given above. Details of units 4 and 9 are given below.

### Unit 4 Laboratory Techniques and their Application

This unit covers the importance of health and safety in work place laboratories, how data is stored and communicated and how organic liquids and solids are made and tested industrially.

Assessment will consist of completing an assignment brief where you will carry out tasks, creating evidence to support a work related scenario. This will be marked by your teacher.

### Unit 9 Human Regulation and Reproduction

This unit will provide learners an understanding of how the internal body environment is regulated and controlled within set parameters to enable key bodily process to take place.

Assessment will consist of completing an assignment brief where you will carry out tasks, creating evidence to support a work related scenario. This will be marked by your teacher.

The Extended Certificate and Foundation Diploma units for each qualification will each be awarded a pass, merit, distinction or fail. A student's unit grades are then aggregated to give an overall qualification grade.

### Skills required

- Ability for independent study and reading relevant science in the news
- Ability to memorise key words, follow technical instructions to carry out experiments
- Organisation
- Biology, Chemistry, Maths and Physics

### Useful websites / reading materials

- BTEC Level 3 Nationals Applied Science Student Book 1- ISBN 9781292134093
- New Scientist magazine (available in the school library)
- Follow New Scientist, Guardian Science, Naked Scientists, Dr Alice Roberts etc. on twitter.
- A Short History of Nearly Everything by Bill Bryson ISBN-10: 0552997048
- <http://www.chemguide.co.uk/>
- <http://www.rsc.org/get-involved/>
- <http://www.nuffieldfoundation.org/practical-physics>
- <http://www.iop.org/>

### Recommended study

- 2 - 3 hours homework / study per week, during which time specific work will be set by staff.
- Reading over and writing up notes in neat
- Completing set homework tasks and assignments
- Small group revision and study sessions
- Answering and self-assessing past paper questions
- Preparing for practicals such as writing risk assessments and methods.
- Watching science programmes on TV / online
- Reading ahead for the next lesson
- Reading relevant science stories in the news eg. conservation, health issues etc.