

## ADVANCED GCE BIOLOGY

**EXAMINING BOARD: AQA A Level Biology (7402)**

### Minimum Entry requirements:

6 in GCSE Biology

### KEY FEATURES OF THE COURSE:

Biology is the study of life and living organisms, connecting us to the world we live in and has the ability to provide answers to the fundamental questions about life to finding solutions for larger-scale problems such as food production, medical advances and environmental conservation. It involves the study of a wide range of exciting topics, ranging from the smallest molecules of life to the larger ecosystem, is always advancing and is never far from the headlines.

Whilst studying A level Biology, you'll demonstrate and apply your knowledge and understanding of scientific ideas to a range of theoretical and practical contexts and develop a wide range of practical skills, research and problem solving, organisation and analytical skills setting you up well for post 16 study in a scientific course.

At the end of Year 12, formal exams will be taken and an assessment of performance before progression

### MODULES/UNITS COVERED IN YEAR 12 (including a brief outline of their content)

1. **Biological molecules** – all life on Earth shares a common chemistry: the molecules needed for a range of metabolic processes. This topic looks at the structure and function of carbohydrates, lipids, proteins, DNA and water.
2. **Cells** – the basic building blocks of life are cells and they can perform a wide range of specialised functions. This topic looks at cell structure and function, the movement of substances into the cell and cells involved in the immune system.
3. **Organisms exchange substances with their environment** – in order for living organisms to survive, they must adapt to their environment to obtain basic components for life. This topic looks at gas exchange in animals and plants, digestion and absorption and mass transport systems in animals and plants.
4. **Genetic information, variation and relationships between organisms** – Biological diversity is reflected in the vast number of species. This topic looks at DNA, genes and chromosomes, genetic diversity, classification and biodiversity.

## MODULES/UNITS COVERED IN YEAR 13 (including a brief outline of their contents)

- 5. Energy transfers in and between organisms** – life depends on the continuous transfer of energy. This topic looks at photosynthesis, respiration and energy transfers between organisms and the environment.
- 6. Organisms respond to changes in their internal and external environments** – organisms must be able to respond to both their internal and external environment to ensure survival. This topic looks at stimuli and responses, nervous coordination, skeletal muscle movement and homeostasis.
- 7. Genetics, populations, evolution and ecosystems** – the theory of evolution and inheritance underpins modern Biology. This topic looks at inheritance, population genetics and ecosystems.
- 8. The control of gene expression** – cells control their metabolic activities by regulating genes, but when this fails, it can have serious consequences. This topic looks at mutations to DNA, gene expression and technologies with DNA.

## TYPE OF ASSESSMENT IN YEAR 13

Three two hour written papers at the end of a two year period:

### Paper 1

91 marks (35% of grade)

Covering content from topics 1 to 4

Includes 76 marks of short and longer answer questions and 15 marks of extended response answers

### Paper 2

91 marks (35% of grade)

Covering content from topics 5 to 8

Includes 76 marks of short and longer answer questions and 15 marks of comprehension questions

### Paper 3

78 marks (30% of grade)

Covering content from topics 1 to 8 and understanding of practical skills

Includes 38 marks of structured questions including practical techniques, 15 marks on critical analysis of experimental data and a 25 mark essay from a choice of two titles

## PRACTICAL ENDORSEMENT

In addition to completing and passing the exams, students must complete a minimum of 12 practicals over the two year course to show competency at a range of practical skills, techniques and apparatus to pass the endorsement. All practicals link to the content covered in both years and include:

- Investigating variables on enzyme controlled reactions
- Dissection of mass transport systems
- Use of aseptic techniques to investigate microbial growth
- Use of chromatography to isolate pigments in different plants
- And many more...