



A-LEVEL BIOLOGY

TOGETHER WE SUCCEED
ACHIEVEMENT ASPIRATION HIGH EXPECTATIONS COMMUNITY

A-LEVEL BIOLOGY

EXAM BOARD: AQA

Aims of the Course:

The course will help you to understand how living organisms function from a unicellular to a multi-cellular level, and the biological processes that occur within these organisms in order to keep them alive. There is opportunity to develop practical skills alongside developing an understanding of key concepts and principles in Biology.

Programme of Study in Year 1:

Unit 1 - Biological molecules.

Unit 2 - Cells.

Unit 3 - Organisms exchange substances with their environment.

Unit 4 - Genetic information, variation and relationships between organisms.

Programme of Study in Year 2:

Unit 5 - Energy transfers in and between organisms.

Unit 6 - Organisms respond to changes in their internal and external environments.

Unit 7 - Genetics, populations, evolution and ecosystems.

Unit 8 - The control of gene expression.

Approaches to Learning:

You will develop independent learning skills through reading and research. You will be involved in abstract modelling of biological processes, practical data collection leading to the use of analysis and interpretation.

Practical skills are central to the new specification. Students are assessed in the way they carry out five key competencies and have to successfully use a set list of apparatus. The competencies are:

1. Follows written instructions
2. Applies investigative approaches and methods when using instruments and equipment
3. Safely uses a range of practical equipment and materials
4. Makes and records observations
5. Researches, references and reports.

These competencies are tested through a series of required practical investigations. Students will keep a Professional lab book detailing their practical work. This will form a basis for the practical endorsement that accompanies the award of the A-level.

Assessment:

At the end of 2 years:

Paper 1 – Topics 1-4 including relevant practical skills

- Exam: 2 hours written exam
- 91 marks
- 35% of A-Level

Paper 2 – Topics 5-8 including relevant practical skills

- Exam: 2 hours written exam
- 91 marks
- 35% of A-Level

Paper 3 – Topics 1-8 including relevant practical skills

- Exam: 2 hours written exam
- 78 marks
- 30% of A-Level

This course is for you if you have an interest in the study of living organisms, if you enjoy carrying out investigations in the laboratory or as fieldwork. You should be interested in the development of 'new' biology topics such as genetic engineering and the impact on society.

You will need a sound grasp of Mathematics and Chemistry to study Biology.

This course will prepare you for a wide range of degree courses, especially within the Biological Sciences suite of Degree courses (over 200 different biological degree courses offered at Universities). Future careers include Medicine, Biochemistry, Physiotherapy, Biomedical Engineering, Nursing, Forensic Science, Teaching etc.

Minimum Entry Requirements:

Five grade 9-5 including English and Maths, 66 in Trilogy or 6 in Biology.

STEP-UP INDEPENDENT STUDY TASKS

For Biology you will be conducting research into the structure of eukaryotic cells. This will be used for the introduction lesson for A-Level Biology. The ability to research topics effectively is a valuable skill as it encourages you to apply your knowledge to new contexts and sets apart the best candidates in Biology.

Alongside this you will complete calculation questions to ensure you have the maths skills required for this course as the demand of calculation questions is greatly increased from GCSE

Task 1 - Research and presentation

Cells are a fundamental concept in Biology. You will have studied cells at GCSE but they are more complex than you might think.

Part 1

Using the internet, produce a table to present the structures found within eukaryotic cells.

Include;

- A diagram of each organelle
- A description of each organelle
- A summary of the function of each organelle

Part 2

Produce a model of either a plant or an animal cell with labels using any materials you have. This needs to be brought with you to the introduction lesson and ready to present to the class.

Task 2 - Maths skills for Biology - Booklet

This task requires knowledge from Task 1 and should be completed second.

Maths skills are incredibly important to A-Level Biology and must be in place before you begin. To ensure you have these skills you will need to complete the 'Maths for Biology Workbook' booklet below. This will test your ability to convert numbers between measurements, calculate magnification, analyse complex graphs and identify structures within cells.

This needs to be completed by the introduction and will be assessed by your teacher.

Task 2 Resource - [Maths for Biology Workbook](#)

TO DEEPEN YOUR UNDERSTANDING

- Light microscopes are not the only method of studying cells. Higher resolution electron microscopes are used to study cells in more detail.
- Research and produce a written summary of the differences between scanning and transmission electron microscopes.
- Suggested starting points:
 - Good introductory video: <https://www.youtube.com/watch?v=E90CzndvW4E>
 - A straightforward introduction of the key ideas:
<https://alevelnotes.com/notes/biology/cells/cell-structure/magnification>

COMPLETED TASK

Student Name			
Subject Teacher		Date:	
Form Tutor:		Date:	