

## POST 16 SUBJECT OVERVIEW

### Post 16 Subject Overview

**Name of Subject** - A Level Biology

**Which Examination Specification is Studied for this Course?**

AQA

**Why should I study this course?** -

People will always require healthy food, novel medicines, clean water, sensibly-produced crops, and fuel that is carbon neutral. Without a workforce well trained in the biological sciences, none of this will happen.

From treetops to ocean trenches, ecosystems to organ systems and dinosaurs to DNA-Biology is the study of life. It's an exciting time to be a Biologist. Biologists are working to solve the biggest challenges currently faced by people and the planet – fighting disease, protecting the environment and feeding our growing population. You will find biologists working all over the world in almost every setting imaginable: in research laboratories, hospitals, offices, classrooms, factories, boats, aeroplanes, submarines, museums, jungles, deserts, forests, caves, treetops, cliffs, frozen tundra...

**Who is suitable to study this course?** -

Biology, like all sciences, is a facilitating subject which opens many doors but it is a difficult A level with a lot of new content therefore students who have enjoyed the challenges of GCSE science will excel in this subject.

**What GCSE Qualifications Support the Study of this Course?**

A level biology tests scientific ability, mathematical skills and communication. 10% of the marks are for GCSE higher paper standard maths content (which could be as much as 2 grades difference) so students must have studied the higher paper for their GCSE maths. A large number of the exam questions also require long answer prose and there is a 25 mark essay question in the final paper therefore GCSE English supports this.

**What are the Qualification Requirements for this Course?**

We require GCSE in Biology or Combined Science at grade 6 and GCSE maths at grade 6.

### How is the Course Delivered? -

Biology is delivered over 5 hours per week of classroom learning, plus around a further 5 hours of independent study. Students will have two biology teachers who will each deliver separate elements of the course.

There are 12 required practicals which contribute to a practical endorsement and will be examined but teachers will also use practical investigations to help deliver the course content.

| Subject Overview |   |   |
|------------------|---|---|
| Half Term        | Year 12   | Year 13   |
| Autumn 1         | Biological molecule structures, cell structure, transport within cells.                     | Inheritance, responses of organisms to their environment. |
| Autumn 2         | Immunity, DNA structure and replication.  | Nerve impulses, muscle contraction, photosynthesis        |
| Spring 1         | Gas exchange in mammals, insects and fish, the heart, protein synthesis, natural selection. | Respiration, homeostasis.                                 |
| Spring 2         | Haemoglobin and oxygen dissociation, plant transport.                                       | Control of gene expression and biotechnology.             |
| Summer 1         | Biodiversity, antibiotic resistance, aseptic technique.                                     | Consolidation and revision.                               |
| Summer 2         | Ecology, essay writing skills, mathematical skills.   | Exam preparation.   |

### How is the Course Assessed?

The course is 100% exam based and examined by 3 terminal exam papers:

## **Paper 1**

Any content from topics 1–4, including relevant practical skills written exam: 2 hours - 91 marks (35% of A Level) 76 marks: a mixture of short and long answer questions 15 marks: extended response questions.

## **Paper 2**

Any content from topics 5–8, including relevant practical skills written exam: 2 hours - 91 marks (35% of A Level) 76 marks: a mixture of short and long answer questions 15 marks: comprehension question.

## **Paper 3**

Any content from topics 1–8, including relevant practical skills written exam: 2 hours - 78 marks (30% of A Level) 38 marks: structured questions, including practical techniques 15 marks: critical analysis of given experimental data 25 marks: one essay from a choice of two titles

Across each exam the following skills are assessed:

AO1: Demonstrate knowledge and understanding of scientific ideas, processes, techniques and procedures.

AO2: Apply knowledge and understanding of scientific ideas, processes, techniques and procedures: In a theoretical context In a practical context When handling qualitative and quantitative data.

AO3: Analyse, interpret and evaluate scientific information, ideas and evidence, including in relation to issues, to: Make judgements and reach conclusions Develop and refine practical design and procedures.

Throughout the course students are assessed at regular intervals using praising stars tests which test any content which has been covered up to that point of the course.

## **What is our Recommended Subject Reading list to Support your Study? -**

Examples of wider reading for biology A level include:

The Selfish Gene Richard Dawkins

Behave: The Biology of Homosapiens Robert Sapolsky

The Double Helix James Watson

The Extended Phenotype Richard Dawkins

Origin of species Charles Darwin

Life Ascending Nick Lane

Genome Matt Ridley

The Lives of a Cell Lewis Thomas

The Story of the Human Body Daniel Lieberman

Life on the Edge Jim Al-Khalili and Johnjoe McFadden

The Epigenetic Revolution Nessa Carey

