



## Course Information

The AS Level is divided into four modules.

**Module 1:** Development of practical skills in Biology

The development of practical skills is a fundamental and integral aspect of the study of any scientific subject. These skills not only enhance learners' understanding of the subject but also serve as a suitable preparation for the demands of studying biology at a higher level.

**Module 2:** Foundations in Biology

This module gives learners the opportunity to use microscopy to study the cell structure of a variety of organisms. Biologically important molecules such as carbohydrates, proteins, water and nucleic acids are studied with respect to their structure and function. The structure and mode of action of enzymes in catalysing biochemical reactions is studied.

**Module 3:** Exchange and Transport

In this module, learners study the structure and function of gas exchange and transport systems in a range of animals and in terrestrial plants.

**Module 4:** Biodiversity, Evolution and Disease

In this module the learners study the biodiversity of organisms. It serves as an introduction to ecology, emphasising practical techniques and an appreciation of the need to maintain biodiversity. The learners also gain an understanding of the variety of organisms that are pathogenic and the way in which plants and animals have evolved defences to deal with disease. The impact of the evolution of pathogens on the treatment of disease is also considered.

**Two further modules will be completed to gain the full A Level qualification. These are:**

**Module 5:** Communication, Homeostasis and Energy

It is important that organisms, both plants and animals are able to respond to stimuli. This is achieved by communication within the body, which may be chemical and/or electrical. Both systems are covered in detail in this module. Communication is also fundamental to homeostasis with control of temperature, blood sugar and blood water potential being studied as examples. In this module, the biochemical pathways of photosynthesis and respiration are considered.

**Module 6:** Genetics, Evolution and Ecosystems

This module covers the role of genes in regulating and controlling cell function and development. Heredity and the mechanisms of evolution and speciation are also covered. Some of the practical techniques used to manipulate DNA such as sequencing and amplification are considered and their therapeutic medical use. The use of microorganisms in biotechnology is also covered. Both of these have associated ethical considerations learners develop a balanced understanding of such issues. Learners gain an appreciation of the role of microorganisms in recycling materials within the environment and maintaining balance within ecosystems. The need to conserve environmental resources in a sustainable fashion is considered, whilst appreciating the potential conflict arising from the needs of an increasing human population. Learners also consider the impacts of human activities on the natural environment and biodiversity.

**Assessment:**

**At AS Level:**

**AS Papers 1 and 2 can assess any content from Modules 1 to 4.**

**Paper 1= Breadth in Biology**

**Paper 2= Depth in Biology**

**At A Level:**

**A Level Paper 1 assesses the content from Modules 1, 2, 3 and 5.**

**A Level Paper 2 assesses the content from Modules 1, 2, 4 and 6.**

**A Level Paper 3 assesses the content from Modules 1 to 6.**

All Exams are taken in May or June

**The Practical Endorsement:**

For the full A level certification, 12 Practical activities will be completed over the two years.

The written exam may include questions related to any of these practical's.

**To take this course, students will need:**

At least a grade B/6, in Core Science and Additional Science for both coursework and exams and a recommendation from subject teachers to follow this course.

Students who gain a grade D or better in AS can continue to A2.

