

# A Level Biology OCR A

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## Why study Biology?

Biology A Level is essential for studying biology-related degrees at university such as Biology, Zoology, Microbiology, Marine Biology, Ecology and Environmental Science. It is also highly recommended to pursue any health-related career such as medicine, dentistry, veterinary science or pharmacy. Universities and employers will be very impressed with a strong Biology A Level grade on a student's applications, and it opens a variety of other pathways including work with microscopy, biochemistry, animals and the environment.

## About the course

The A Level Biology course will give you a rounded and in-depth knowledge of different organisms, the systems and cells that make them work, and how our modern understanding of Biology has influenced our lives. This course is an ideal choice for those who want to continue their study of biology after completing GCSE Triple or Combined Science.

## Year 12

### Module 1 Development of Practical Skills in Biology

All the practical skills covered in this unit will be assessed in the final exams. Students will complete several Practical Assessments throughout Year 12, which form a portfolio of practical work that can be used to revise the required practical skills.

### Module 2 Foundations in Biology

The first year begins with the building blocks of living things: cells and the biological molecules from which they are made. This module provides the opportunity to use microscopes to study cell structure of a variety of organisms. Biological molecules are studied with respect to their structure and function. This module also considers the way in which the structure of cell membranes relates to the many essential roles' membranes play in living cells. The division and specialisation of cells is studied together with stem cells. The knowledge and understanding from this module is essential to the rest of the A Level Biology course.

### Module 3 Exchange and Transport

In this module students learn about the systems that animals use to supply oxygen to, and remove carbon dioxide from, their bodies. Mammals, fish and insects are used as examples, and the significance of surface area to volume ratio is emphasised.

### Module 4 Biodiversity, Evolution and Disease

The final module in the first year looks at the meaning, importance, threats to, and services provided by biodiversity on Earth. There is an emphasis on the practical techniques needed to study ecology, and what people are doing around the world to maintain biodiversity. Evolution is examined in greater depth, and students will learn more about variation between living things and the ways that biologists classify them. Diseases, and the pathogens that cause them, are examined in detail, as well as the ways that plants and animals deal with them.

## Year 13

Module 5 Communication, Homeostasis and Energy Systems  
Chemical and Electrical communication systems are covered in detail in this module. Communication between cells and organs is also fundamental to homeostasis, and the main examples studied here are the control of temperature, blood sugar and water potential. The processes of photosynthesis and respiration are essential to the maintenance of life on this planet, and the biochemical pathways involved in both are also studied in detail in this module.

## Module 6 Genetics, Evolution and Ecosystem

The final module of the course covers the role of genes in regulating and controlling cell function and development. Students will learn about practical techniques used to manipulate DNA, and their uses in modern medicine. Students will learn about some of the many exciting applications of biotechnology and will gain an appreciation of the role of microorganisms in recycling materials within the environment and maintaining balance within ecosystems.

## A Level Practical Endorsement

Throughout the first-year students will complete twelve Practical Assessment activities that demonstrate competence in a range of experimental methods. This will be teacher assessed and performance reported separately to the A Level grade.

## Entry criteria

Students must have achieved a minimum of grade 6 in all Biology GCSE exam modules, and it would be preferable for students to have a grade 6 overall in science. Alongside 6s in Maths and English due to the high levels of literacy and numeracy required on the course.

## Outside the classroom

Additional support is available to students after school once a week. A member of staff will be available to help with any difficulties encountered during lessons. We aim to take Biology A Level student out of school to extend their understanding: in recent years students have visited Gyllyngvase Beach to study zonation on a rocky shore and to the Eden Project to learn about biodiversity and to investigate the polymerase chain reaction. Students will also have the opportunity to take part in further enrichment activities such as trips to the medical schools at Plymouth and Exeter and will be encouraged to take part in the Intermediate and Advanced Biology Olympiads.

