

INTRODUCTION TO THE BIOLOGY DEPARTMENT

Biology is a popular subject at A-level. We currently have over 170 sixth form Biology students, in 8 classes. Students have 10 1-hour lessons per fortnight in Year 12 & 13, split between two teachers. We follow the OCR-A A-Level specification. Throughout the two years, pupils study many aspects of Biology in depth and get to use state of the art equipment to carry out regular practical work that is an integral part of the course. The skills and knowledge they develop prepares them well for studying Biology and related degrees at university.

Many students that study A level Biology go on to study one of a huge range of biological related degrees including Medicine, Dentistry, Nursing, Pharmacy, Biomedical Sciences, Biology, Zoology or Ecology.

Pupils are currently taught Chemistry, Biology and Physics separately from year 7, by subject-specialist teachers. Small class sizes (no more than 26 students) allow more individualised learning to take place.

We have structured our Biology course to enable pupils to understand the importance of good character and to practice the virtue of integrity. Underpinning all our lessons is the development of three main skill areas: knowledge and understanding, scientific communication and data analysis. These skills are essential in allowing pupils to successfully progress through GCSE, A-Level and beyond.

At Key Stage 3 we have chosen to concentrate on one broad theme each year thus enabling pupils to build new knowledge onto secure foundations by maximising the opportunities to revisit fundamental concepts every lesson. This allows all pupils to have the confidence to be curious and ask the big (and small) questions about the world around us. In Year 7 pupils begin by learning about cells, the building blocks of all organisms. They then apply their knowledge of cells to the processes involved in reproduction, growth and development, including finding out what controls our characteristics. In Year 8 pupils study plants in depth. They zoom in to consider plant structures and functions and how they generate and use energy and then zoom out to find out how this stored energy and other elements are passed on to other organisms when they study ecosystems.

At GCSE, students either take separate Chemistry, Biology and Physics GCSEs, or GCSE Combined Science: Trilogy, all following AQA specifications. All pupils have four hours of Biology teaching in year 10 and 11. At the start of year 9 pupils start their GCSE course and explore the differences between types of cells and learn how cells must divide by mitosis in order for an organism to grow. They then focus on understanding human physiology, developing an appreciation of how lifestyle choices influence their health and consider how advancements in medicine are changing the way we treat diseases. At the start of year 10 pupils explore the processes involved in moving substances into and out of cells. In term 2 pupils build on their understanding of the human digestive system from year 7 and plant organisation from year 8 whilst also gaining a deeper understanding of how plants harness the sun's energy and how both plants and animals use oxygen to oxidise food transferring energy for cellular functions. In the final term pupils study Ecology building on their knowledge from year 8 they explore the complexities of the makeup of ecosystems and gain an appreciation of the importance of biodiversity in the provision of essential services that support human life. In year 11 pupils discover how the nervous system and hormonal system bring about responses to regulate the internal environment in humans. Finally they learn about the genetic code and how characteristics can be inherited and controlled by genes.

Teachers who join the school at this exciting stage will have the opportunity for a considerable amount of GCSE and A-level teaching.

Facilities and equipment

All Biology lessons are taught in well-designed and resourced laboratories. Every laboratory has an interactive whiteboard with visualiser.

We have an incredible array of top-quality, brand-new equipment, including binocular microscopes with a moveable stage, colorimeters, gel electrophoresis tanks and data loggers enabling students to be able to carry out the full range of laboratory practicals in pairs.

We also have a range of up-to-date textbooks and online resources including access to GCSE POD for KS4 and UpLearn for KS5, and have chosen a wide variety of Biology-related books for the library.

Teacher CPD, Support and Progression

In school, there is a research-led CPD programme for all teaching staff co-ordinated by the Assistant Vice Principal for Teacher Development, and a comprehensive programme to support Early Career Teachers. A number of members of staff are completing their Masters while at the school.

There are also 3 designated research days a year that you can use as you wish, staff often use these days as an opportunity to visit other schools.

The Team

The Biology department is a well-established and stable team with the majority of teachers having worked at the school for at least 5 years. As part of the team we also have a fantastic Biology technician who goes above and beyond and will confidently support staff in lessons if required. We are all enthusiastic and enjoy sharing our passion for the subject to students. We work extremely well together, sharing all resources allowing us to spend our time focusing on our practice and minimise workload.

You are welcome to contact Mary Barton, the Subject Leader for Biology, at m.barton@uobschool.org.uk with any queries regarding the department.