

# Biology

## OCR A specification



### General information:

The course provides a broad understanding of the principles and applications of biological processes. Students will develop a detailed knowledge of the living world from the molecular to whole ecosystem perspective. Students are prepared carefully to meet the demands of the new exam questions and we ensure students practise applying their understanding to unfamiliar contexts. The course is structured to ensure that students build on the skills and knowledge acquired at GCSE and are able to apply this understanding to current biological issues in the wider world. The biology course is varied, relevant and challenging and provides a gateway to a wide range of career paths.

### Course content:

Module 1: Practical Skills which is integrated into the modules taught in both years.

The year 12 course is set out in 3 modules

Module 2: Foundations which covers cell biology, biochemistry, enzymes,

Module 3: Exchange and Transport which covers gas exchange in a range of organisms and their transport systems including the mammalian circulatory system and plant transport

Module 4: Biodiversity, evolution and disease. This module studies common diseases the immune response, and treatments. Study includes the environment and methods of conservation, classification, variation and the theory of evolution.

The year 13 course is set out in 2 modules.

Module 5: Communication and Energy which covers hormonal and nervous control, movement, photosynthesis and respiration.

Module 6: Genetics, Evolution and Ecosystem which covers inheritance, evolution, genetic control mechanisms, genetic engineering and ecology.

### How is the course taught and assessed?

The course is split between two teachers. Practical work is taught in well resources labs and it is assessed within the teaching modules taught throughout both years. A range of practical tasks which cover 12 Practical Activity Groups (PAGs) must be completed in order to be awarded a pass. These tasks ensure students develop good practical skills and gain experience of using a range of equipment and techniques. Students are expected to complete a programme of independent study in addition to homework tasks. The schedule for each term, which includes any worksheets instructions with deadlines, is set out on a document which is located in the BWS website in the Biology Files.

Students are regularly assessed at the end of each module and at key points within the year.

At the end of year 13 there will be three papers:

- Biological Processes 37% of total marks
- Biological Diversity 37% of total marks
- Unifying Concepts 26% of total marks.
- The outcome of the Practical Endorsement is passed on to the exam board.

<b>Entry requirements:</b>	<b>Results information:</b>	<b>Top destinations for students:</b>
As well as the general entry requirements for BWS, you will need to achieve a Grade 7 in GCSE Biology or Grade 7,7 in Combined Science	Biology consistently achieves excellent results. On average 73% of students achieve A*-B. with over 50% achieving A* or A grades	Oxford / Cambridge / Imperial College Medicine, Veterinary Science, Pharmacology, Biomed, Marine Biology, Physiotherapy, Sports Science and many others...

### **Beyond the curriculum:**

Science has an extensive enrichment programme. Student led groups such as the Young Medics Society and Engineering Society have a varied programme of speakers throughout the year. In addition, the BAYS programme (British Association of Young Scientists) last year provided the students with ten after school talks on a wide range of Scientific topics. Last year these sessions included presentations entitled 'Cell division', 'The Exploration of the Geology of the Earth', 'Structural Engineering', 'Nanospace Chemistry', 'Computational Chemistry', 'The Grand Challenges in Medicine', 'Critical Care Medicine' and 'Respiratory Diseases'. Each of these talks was delivered by academics and professionals active in these fields.

### **Biology Field Course**

Year 13 Biologists spend a day at the Isle of Purbeck with the Leeson House field studies tutors in a variety of habitats. Our students get hands on experience of practical field study techniques and learn how the data can be used to understand environmental processes.

### **Biology Olympiad Competition**

The Biology Olympiad is a national competition which runs in January and is entered by the majority of our A Level Biologists in both Year 12 and Year 13. Results have been very pleasing and BWS students regularly qualify for the second round selection for the national team.

### **STEM Careers Conference**

In March each year we run a STEM conference where Year 12 students listen to a keynote talk and then have the opportunity to attend two of a range of workshops delivered by speakers across a broad range of STEM areas.

### **BWS is an IRIS School**

We are registered with the 'Institute for Research in Schools' and have had a number of boys involved in a research project looking at cataloguing the human whipworm genome. This work is novel research and gave those students involved first-hand experience in undertaking novel scientific research.

### **Support for Medics, Vets and Dentists**

As well as attending the Young Medic talks, we also offer application advice and interview sessions.

### **Visits to University Biology departments**

Students have the opportunity to apply for a day of work shadowing at a Southampton University.

### **Headstart and Nuffield Placements**

We support and encourage students to apply for these courses with a number attending each year. These placements give students at the end of Year 12 the opportunity to find out more about a course at university enabling a more informed decision regarding university and job applications.

### **Leadership Opportunities within Science**

We have Science prefects who co-ordinate the work of students in Yr12 and Yr13 in leading science wide activities and sixth formers also offer small group mentoring run at lunchtimes.