

A level Biology

Introduction – an outline of the course

Welcome to A level biology. During your time in the Sixth form you will study aspects of animal and plant biology that will build upon the knowledge and skills that you have developed in Key Stage 4. The assessment at the end of Year 13 consists of three exams in which you can demonstrate your understanding and ability to apply your knowledge.

There is no NEA work in A level biology but just like at GCSE there are required practicals that you must complete. During these practicals you will gain skills and competencies that you may develop if you move onto university or a science-based career.

The A level grade that you will receive is based on your performance in the three exams and you will also be awarded a practical endorsement to gain the full A level.

What will we be studying in the first half term?

In September you will start by looking at the fundamental concepts in Biology that will serve as a foundation to build your knowledge and skills. Topics covered are cells and biological molecules.

Cells

All life on Earth exists as cells. These have basic features in common. Differences between cells are due to the addition of extra features. This provides indirect evidence for evolution. All cells arise from other cells, by binary fission in prokaryotic cells and by mitosis and meiosis in eukaryotic cells. All cells have a cell-surface membrane and, in addition, eukaryotic cells have internal membranes. The basic structure of these plasma membranes is the same and enables control of the passage of substances across exchange surfaces by passive or active transport. Cell-surface membranes contain embedded proteins. Some of these are involved in cell signalling – communication between cells. Others act as antigens, allowing recognition of 'self' and 'foreign' cells by the immune system. Interactions between different types of cell are involved in disease, recovery from disease and prevention of symptoms occurring at a later date if exposed to the same antigen, or antigen-bearing pathogen.

Biological Molecules

In this topic you will find out that all life on Earth shares a common chemistry. This provides indirect evidence for evolution. Despite their great variety, the cells of all living organisms contain only a few groups of carbon-based compounds that interact in similar ways. Carbohydrates are commonly used by cells as respiratory substrates. They also form structural components in plasma membranes and cell walls. Lipids have many uses, including the bilayer of plasma membranes, certain hormones and as respiratory substrates. Proteins form many cell structures. They are also important as enzymes, chemical messengers and components of the blood. Nucleic acids carry the genetic code for the production of proteins. The genetic code is common to viruses and to all living organisms, providing evidence for evolution. The most common component of cells is water; hence our search for life elsewhere in the universe involves a search for liquid water.

What can I do that will help me prepare for A level Biology?

One of the important ways that you can prepare is to make sure that you are familiar with the Biology that you have learnt for your GCSE Science or Biology. Some of the topics that you will study at A level expect you to have a good understanding of the work that you have covered during your GCSE. Make sure that you keep your knowledge organisers, revision guide or exercise book as a reminder of the work that you have covered.

You may wish to use some of your summer to carry out some background reading and preparation. You could complete an on-line university course (Mook). Log onto Unifrog to find out more;

<https://www.unifrog.org/student/moocs/start>

There are numerous books that you may be able to borrow or you can look at YouTube and search for "biology bbc four" at https://www.youtube.com/results?search_query=biology+bbc+four

Summer Gap Task and where to find this

To help you make the transition to A level Biology you have summer gap task to do. The completed task should be given to your new teacher in the first biology lesson.

When completing the tasks, you will be using the skills that you have developed during your GCSEs. It is easy to let these skills lapse which will make the start of your A levels more difficult because you will be trying to remember what you did at GCSE and learn new knowledge and skills.

On the [school website](#), if you click on Sixth Form and follow the list until you see Year 11 into 12 Gap Tasks. Click on this and find the Biology task which is a PDF booklet.

The booklet has been produced by the exam board (AQA) that you will be studying. It starts with an introduction, suggestions about what Biology can lead to, a description of the course and exams and links to helpful websites.

We are really looking forward to seeing you in September and working with you so that you achieve your goals and aspirations.