

## **Year 12 : Biology Introduction**

**You will study Edexcel A' Level *Biology A (Salters-Nuffield)*.**

- Topic 1: Lifestyle, Health and risk
- Topic 2: Genes and Health
- Topic 3: Voice of the Genome
- Topic 4: Biodiversity and Natural Resources
- Topic 5: On the Wild Side
- Topic 6: Immunity, Infection and Forensics
- Topic 7: Run For Your Life
- Topic 8: Grey Matter

All examined in May/June of Year 13 by **three 2 hour papers**.

You also need to gain your **Science Practical Endorsement**, which will be internally assessed throughout the course and externally moderated.

### **Real Life Biology for the 21st Century**

SNAB topics include story-style contexts. For instance we don't start with cell biology or biochemistry. We start with an account of two real people - Mark, a 15-year-old who had a stroke, and Peter, an adult who had a heart attack. We then go on to look at the factors which make it more likely that any of us will suffer from a stroke or heart attack

This allows us to introduce the concept of risk, along with the relevant biology topics. The biochemistry of fats and carbohydrates is introduced in Topic 1, as you need to know about these to understand about strokes and heart diseases. Phospholipids and proteins are introduced in Topic 2, as they are relevant to 'Genes and Health'.

### **Key Concepts and Skills**

SNAB presents the key concepts underpinning biology today. You learn the wider experimental and investigative skills needed by modern biologists, including the ability to make judgements about the quality of scientific evidence. How Science Works is integrated into the contexts, providing an exploration of the processes and culture of the scientific community.

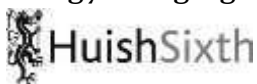
### **Interactive Learning**

The activities in the course challenge you to engage with ideas and evidence - working individually or in groups. The teacher's role is more to do with guiding and explaining rather than transmitting factual information.

### **Social and Ethical Debate**

Through active debate and discussion you are helped to develop your ability to form opinions about social and ethical issues and to support your opinions with well-thought-through arguments, using a clear framework.

## A Level Biology Bridging Work



### Activities and ICT: An Integral Part of Learning

You learn through a wide variety of activities, from practical work to model-building and role plays, together with interactive tutorials and animations.

Interactive material includes topic introductions, GCSE reviews, tests, tutorials, simulations, animations, spread sheets and video clips, much of which is accessed online via the SNAB VLE, for which you will receive a log in.

### Entry Requirements

Grade 6 in GCSE Biology OR 66 in GCSE Combined Science is essential.

Grade 5 in Maths is recommended. The assessment of quantitative skills will include at least 10% level 2 or above mathematical skills for biology

### Assessment Objectives and Weightings

		% in GCE
<b>A01</b>	Demonstrate knowledge and understanding of scientific ideas, processes, techniques and procedures	31-33
<b>A02</b>	Apply knowledge and understanding of scientific ideas, processes, techniques and procedures: <ul style="list-style-type: none"><li>• in a theoretical context</li><li>• in a practical context</li><li>• when handling qualitative data</li><li>• when handling quantitative data</li></ul>	41-43
<b>A03</b>	Analyse, interpret and evaluate scientific information, ideas and evidence, including in relation to issues, to: <ul style="list-style-type: none"><li>• make judgements and reach conclusions</li><li>• develop and refine practical design and procedures</li></ul>	25-27
<b>Total</b>		100

### Getting Started

You will need an **A4 lever arch folder and some dividers**, as you will have two teachers and study two topics at the same time. You are expected to index your work and reflect regularly on your progress. Everyone is issued with a textbook and revision guides are available to buy at cost price. We insist that your file and textbook are brought to every lesson and that all homework is handed in on time. There is also a considerable amount of independent learning necessary at this level of study to be successful. **Please be prepared to do at least 8 hours of independent study each fortnight.**

**Finally please bring your completed 'Bridging Unit' to the first lesson.**

We look forward to seeing you and sharing this exciting course with you.



## **Bridging Unit**

When you return in September to study A'-level Biology you will want and need to be completely up to speed with your GCSE knowledge.

You will also be required to know about how Biology is applied in some key theories.

The work set for you over the Summer break is designed to help you with both of these areas.

### 1. Revision to get a 'Head Start'

You will be studying two units at the same time in September. These are:

**Lifestyle, Health and Risk** and **Genes and Health**. You will therefore be asked to complete two GCSE revision tests, on line, within the first weeks of study.

The areas of Biology you need to revise are:

Blood, the heart and circulation.      The lungs and breathing.

Genetics: - DNA structure and Inheritance, including the disease Cystic Fibrosis.

Enzymes. Protein synthesis. Cell Division. Classification and Evolution.

**You will be expected to achieve over 75% in the GCSE revision assessment. If you fail to do so you will be required to attend supported study sessions to help you achieve the required standard.**

### 2. Biological theories

Produce a table to summarise the work and conclusions of the following, it is also essential to place the findings/theories in the historical context, a time line would help here. Be as original as you can with the presentation!

1. **William Harvey**- valves in veins.
2. **Carl Woese**- classification and the three domains.
3. **William Withering** – work on drug trialling.
4. **Danielli and Davson**
5. **Robertson**
6. **Singer and Nicholson**– nos. 4-6 were all involved in theoretical models of cell membranes.
7. **Meselson and Stahl** and our understanding of semi conservative DNA replication.

For all the information you use it is important to reference internally and add a bibliography at the end, using the Vancouver or Harvard systems correctly.

Enjoy the research!

## A Level Biology Bridging Work - Summer 2022