

SUMMER BRIDGING WORK 2023

Summer Bridging Work is an important part of your transition to Wilberforce Sixth Form College. This piece of work will count towards your effort grade. Please complete your summer bridging work in time for the start of term.

You are required to bring evidence in paper format and hand this into your subject teacher during your first lesson.

A Level Biology

OVERVIEW OF SUBJECT

Welcome to the captivating world of A Level Biology! Prepare to embark on a journey of discovery and exploration of the living world. A Level Biology delves into the fascinating mechanisms and processes that govern life, from the smallest cells to the most complex ecosystems. This course will challenge you to think critically, analyse data, and make connections between different biological concepts. You will learn about the diversity of life, the principles of genetics, the functioning of the human body, and the impact of environmental factors on living organisms. A Level Biology will equip you with the knowledge and skills needed to understand and appreciate the beauty and complexity of life on Earth. Whether you are considering a career in biology or simply fascinated by the natural world, this course will inspire you to see the world around you in a new light.

ENTRY CRITERIA

- Average GCSE points score of 5.3 (to achieve this average, this means your GCSE results need to mainly be grades 5 or 6)
- Grade 5 in GCSE Biology or grade 5-5 in Combined Science
- Grade 5 in GCSE Mathematics (this course has a large mathematical component)
- Grade 4 in English Language (our exam papers include 25-mark essay questions where clear communication is vital)

LITERACY TASK (500 words)

Summarise ten key concepts related to the topic of carbohydrates (this is the very first topic that you will study in A Level Biology). Feel free to include diagrams of carbohydrates, condensation and hydrolysis reactions. This link may help: bit.ly/3nBlyGR.

NUMERACY TASK

Magnification (CGPP15)

*****Be careful with units – you will need to convert mm to um and vice versa (1mm = 1000um).*****

$$\text{Magnification} = \text{Size of image} / \text{Size of real object}$$

1. In a microscope image, a mitochondrion's length measures 4mm. Its real length is 10um. What is the magnification?
2. A virus has a diameter of 0.12um.
 - a. In a microscope image, the virus has a diameter of 6mm. What is the magnification of the microscope?
 - b. The same virus is examined with a x15 000 lens. What is the diameter of the magnified image? Give your answer in millimetres.

Percentages (CGPP28)

1. In a sample of 42 genes, 18 are found to be polymorphic. What fraction of genes are polymorphic?
2. Ailsa was investigating the nutritional content of some foods. One food sample had a total mass of 40g. The mass of protein in the sample was 12g. What percentage of the food was protein?
3.
 - a. It is estimated that, in the UK, $\frac{1}{2500}$ of the population are affected by cystic fibrosis. In a sample of 15 000 people, how many would you expect to suffer from cystic fibrosis?
 - b. The estimated frequency of carriers of the cystic fibrosis gene in the population is 4%. In a sample of 4500 people, how many would you expect to be carriers?
 - c. Raja monitored the height of his tomato plants every week for five weeks. The table below shows his results for week 2 and week 5. Fill in the missing values.

Plant	Height at week 2 / cm	Height at week 5 / cm	Percentage increase / %
1			
2			
3			

PROGRESSION OPPORTUNITIES

Below we have listed four careers linked to Biology. You are tasked to research the four careers, choose one that most appeals to you and write a 200-word essay as to why you feel this career would be most suited to you.

1. Zoologist
2. Microbiologist
3. Biology Teacher
4. Medical Doctor

Kind regards

Ben Latimer

Deputy Faculty Head for Science and Health

If you have any queries regarding your Summer Bridging Work, please contact me via email bnl@wilberforce.ac.uk. I will aim to respond before your enrolment appointment.