

Biology @ WBS Year 12 Roadmap

Subject Aim: To build on prior GCSE knowledge in Biology and to understand and explore biological molecules, cells, exchange between organisms and the environment, genetic information, variation and the relationships between organisms. To develop problem solving and practical skills including mathematical skills and to develop inquisitive and independent learners.

Autumn Term	Topic 1 Biological Molecules
	Fundamental biological molecules in organisms including carbohydrates, lipids and proteins. Enzyme structure and function. Required practical 1: Enzyme activity.
	Topic 2 Nucleic Acids
	Structures of DNA and RNA, DNA replication and the role of water in living organisms.
	Topic 3 Cell Structure
Spring Term	Eukaryotic and prokaryotic cell structure and function. Microscopy, cell division and the cell cycle. Required practical 2: Mitosis.
	Topic 4 Transport Across Cell Membranes
	Structure of the cell membrane, diffusion, osmosis, active transport and co-transport. Required practical 3: Osmosis
	Required practical 4: Membrane permeability
	Topic 5 The Immune System
Summer Term	The role of T and B lymphocytes in the defence against disease. Antibodies and vaccination.
	Topic 6 Exchange
	Gas exchange within and between organisms and the environment, in animals, plants, insects and fish.
	Topic 7 Mass Transport
	Transport of oxygen in mammals, the cardiac cycle, and the transport of water and organic molecules in plants. Required practical 5: Heart dissection
TTP	Topic 8 DNA, Genes and Protein Synthesis
	The triplet code, transcription and translation.
	Topic 9 Genetic Diversity
	Mutation, meiosis, diversity and selection. Required practical 6: Aseptic techniques
	Topic 10 Biodiversity
	Classification, species diversity and human activity.
	Maths for Biologists
	Calculating uncertainties, ratios, logs and rates. 3 statistical tests: Correlation coefficient, Students T test and Chi-Squared test.
	At timetable promotion you will move on to Y13 content

Assessment

There will be 3 formal Key Assessments in Y12. Each will be a test of all of the content you have covered up to that point in time. You will be given the chapters from the textbook that you need to use 2-3 weeks prior to the assessment. You should also use your SIS to help you to prepare and revision material available on Sharepoint. You will be expected to revise independently outside of lesson time. The third assessment in Year 12 will be a formal mock exam.

Key Assessment 1	29 th September 2026
Key Assessment 2	26 th January 2027
Key Assessment 3	22 nd /23 rd April 2027
Mocks	End of June/start of July

Homework and Revision

Homework is set by your class teachers on Arbor. Announcements regarding Key Assessments will be made by the Head of Biology. You will also be told about this in lessons. You are strongly advised to revisit your notes often throughout the year to consolidate your learning and to make assessment preparation as straightforward as possible.

Enrichment themes

We will highlight links to careers in Biology throughout the year. You are encouraged to approach your Biology teachers for further advice on pursuing Biology at a higher level. There will also be an opportunity to attend a residential fieldtrip to enhance your knowledge and understanding of ecology.

Where Next?

Year 13 to continue your studies and to find out more about life after school.