

# Biology @ WBS Year 13 Roadmap

**Subject Aim:** To build on Year 12 Biology knowledge and to understand and explore energy transfers in and between organisms, learn how organisms respond to changes in their environment, develop knowledge of genetics, populations, evolution and ecosystems and the control of gene expression. To further develop problem solving and practical skills including mathematical skills and to develop inquisitive and independent learners.

TT and Autumn Term	<b>Topic 11 Photosynthesis</b>
	In depth study of how plants photosynthesise. Required practical 7: Leaf chromatography Required practical 8: Photosynthesis
	<b>Topic 12 Respiration</b>
	The four stages of aerobic respiration and further study on anaerobic respiration. Required practical 9: Respiration
	<b>Topic 13 Energy and Ecosystems</b>
	How energy is transferred across food chains, productivity, nitrogen and phosphorus cycles, uses and impacts of fertilisers.
Spring Term	<b>Topic 14 Response to Stimuli</b>
	Survival and response, plant growth factors, the reflex arc and control of heart rate. Required practical 10: Response in animals
	<b>Topic 15 Nervous Coordination and Muscles</b>
	The nerve impulse, action potentials, synapses, structure and mechanism of action of skeletal muscle.
	<b>Topic 16 Homeostasis</b>
	Regulation of blood glucose and blood water potential including detailed study of the kidneys. Required practical 11: Colorimetry
Summer Term	<b>Topic 17 Inherited Change</b>
	Dihybrid inheritance, codominance, sex and autosomal linkage, epistasis.
	<b>Topic 18 Populations and Evolution</b>
	Population genetics, natural selection, evolution and speciation.
	<b>Topic 19 Populations and Ecosystems</b>
Competition, predation, succession, conservation and investigating populations. Required practical 12: Fieldwork	
Summer Term	<b>Topic 20 Gene Expression</b>
	Mutations, stem cells, regulation, epigenetics.
	<b>Topic 21 Recombinant DNA technology</b>
In vivo and in vitro cloning, genetic screening and fingerprinting.	
Summer Term	<b>Review of Topics 1-21</b>
	Revision of all A-level content, mathematical skills, essay and exam preparation.

## Assessment

There will be formal Key Assessments throughout Y13. 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 Brightspace. You will be expected to revise independently outside of lesson time.

Mock (Yr 12 into 13)	w/c 26 <sup>th</sup> Jun 2023
Key Assessment 1	Tuesday 7 <sup>th</sup> Nov 2023
Key Assessment 2	Thursday 11 <sup>th</sup> Jan 2024
Key Assessment 3 (mock)	w/c 4 <sup>th</sup> March 2024

## Homework and Revision

Homework is set by your class teachers on Brightspace. Announcements regarding Key Assessments will be made by the Head of Biology on Brightspace. 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. Your teachers will also inform you of opportunities to visit research labs and listen to speakers in the scientific field.

## Where Next?

University degree, higher level Apprenticeship or gap year – we all wish you the very best of luck.