

# Department: Biology

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## Our Curriculum Aims:

Biology is an exciting dynamic subject that aims to understand the very basis of life itself. It ranges from the interactions that occur at the molecular level within and between cells to the interactions within and between whole ecosystems. It is constantly evolving and is a subject that is relevant to every single person.

David Attenborough said

“It seems to me that the natural world is the greatest source of excitement; the greatest source of visual beauty; the greatest source of intellectual interest. It is the greatest source of so much in life that makes life worth living”

In our Biology curriculum we aim

- To enable students to have a good understanding of the biological principles that will enable them to make sense of the Biology they encounter in their lives.
- To develop scientific curiosity and enable students to understand the importance of science to society.
- To encourage independent learning so students have the skills to be lifelong learners.
- To encourage our students to become questioning thinkers so they are able to consider data presented to them in a critical manner.
- To enable the students to develop their core scientific analytical skills as well as scientific literacy.
- To develop the practical skills necessary to carry out valid investigations.
- To prepare students with a solid foundation of the knowledge and skills required to enter a wide range of technical and scientific professions.

We have a range of extracurricular opportunities which include Media club, CREST awards and the opportunity to take part in the RSB Biology challenge and intermediate Biology Olympiad.

Students are taught in one of our five dedicated Biology labs by experienced teachers whose specialisms range from Biochemistry to Ecology.

In year 13 Students take part in a field trip to Rhyd-Y Creuau field studies centre in Wales.

# Key Stage Three Curriculum Overview

## Year 9

	<b>Name of topic</b>	<b>Key Content of the Topic</b>	<b>Assessment points</b>
<b>HT 1</b>	Photosynthesis and Plant Growth Respiration	Investigation of the requirements of Photosynthesis and Respiration. Development of Practical skills and competencies needed to pass the GCSE practical skills assessment.	Tests at the end of photosynthesis topic and end of respiration topic.
<b>HT 2</b>	Start of the GCSE AQA specification 4.1 Cells 4.1.1.1-4.1.1.5 1-4.1.3.2 4.1.3.3	Animal and plant cells Microscopy Eukaryotes and prokaryotes Cell specialisation and differentiation	Tests at the end of the topic
<b>HT 3</b>	AQA specification 4.1.3	Transport in cells Diffusion Osmosis Active transport	Tests at the end of the topic
<b>HT 4</b>	AQA specification 4.2 Organisation within biological systems 4.2.1	Principles of organisation within biological systems	Test at the end of topic
<b>HT 5</b>	AQA specification 4.2.3.1, 4.2.3.2	Plant tissues Plant organ systems	Trial Exam
<b>HT 6</b>	AQA specification 4.7.1.4, 4.7.1.1	Adaptations Communities	Test at the end of topic

## GCSE Course Followed: Biology

Specification: [AQA \(Syllabus code 8461\)](#)

### Why Choose GCSE

GCSE Biology offers a broad base of Biological areas to ensure students are informed about key issues in Biology and the implications for humans and other organisms. It provides students with the greatest range of biological areas for further study at university and beyond. It provides access to a wide range of vocational careers in many different fields such as agriculture, forestry, medicine, conservation and biotechnology. Biology also develops critical thinking, organisational skills, analytical skills and practical skills too.

**All students will study:** Cell Biology  
Organisation  
Infection and Response  
Bioenergetics  
Homeostasis and Response  
Inheritance, Variation and Evolution  
Ecology

## Key Stage Four Curriculum Overview

### Year 10

	<b>Name of topic</b>	<b>Key Content of the Topic</b>	<b>Assessment points</b>
<b>HT 1</b>	Ecology 4.7.1.2, 4.7.1.3 4.7.2.1 4.7.4.2, 4.7.4.3	Abiotic and Biotic factors, Food webs and trophic levels Pyramids of Biomass Transfer of Biomass	Test at end of topic
	Organisation in animals 4.2.2, 4.2.2.2, 4.2.2.3	Animal tissues organs and organ systems exemplified by the Circulatory system.	Test at end of topic
<b>HT 2</b>	Non communicable diseases 4.2.2.4, 4.2.2.5,4.2.2.6, 4.2.2.7	Health issues, the effect of lifestyle on non communicable diseases and cancer	Test at end of topic
	Infection and response 4.3.1.1, 4.3.1.2, 4.3.1.3, 4.3.1.4, 4.3.1.5,	Communicable diseases in plants and animals	Test at end of topic
<b>HT 3</b>	Infection and response 4.1.1.6 4.3.1.6 4.3.1.7, 4.3.1.8 4.3.1.9 4.3.2.1, 4.3.2.2 4.3.3.1 4.3.3.2	Culturing Microorganisms Human defence systems Vaccination, antibiotics and painkillers The discovery and development of drug Production and uses of monoclonal antibodies Detection and identification of plant disease Plant defence responses.	Test at end of topic
<b>HT 4</b>	Bioenergetics 4.4.1.1, 4.4.1.2 4.4.1.3	Photosynthesis	Test at end of topic
	Bioenergetics 4.4.2.1, 4.4.2.2 4.4.2.3	Respiration, Metabolism and response to exercise	Test at end of topic
<b>HT 5</b>	Cell division 4.1.2.1, 4.1.2.2, 4.1.2.3	Chromosomes, Cell division and Stem cells	Trial Exam

<b>HT 6</b>	Homeostasis and response 4.5.2.1, 4.5.2.2 4.5.2.3,4.5.3.1, 4.5.3.2, 4.5.3.3	Nervous system The brain The Eye Homeostasis Control of body temperature Human endocrine system Control of blood glucose Maintaining water balance and nitrogen balance in the body	Test at end of topic
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## Year 11

	<b>Name of topic</b>	<b>Key Content of the Topic</b>	<b>Assessment points</b>
<b>HT 1</b>	Homeostasis and response 4.5.3.4 4.5.3.5 4.5.3.6 4.5.3.7 4.5.4.1 4.5.4.2	Hormones in human reproduction Contraception The use of hormones to treat infertility Negative feedback Plant hormones coordination and control Use of plant hormones	Test at end of topic
<b>HT 2</b>	Inheritance Variation and Evolution 4.6.1.1 4.6.1.2 4.6.1.3  4.6.1.4 4.6.1.5 4.6.1.6 4.6.1.7	Sexual and asexual reproduction Meiosis Advantages and disadvantages of sexual and asexual reproduction DNA and the genome DNA structure Genetic inheritance Inherited disorders	Test at end of topic
<b>HT 3</b>	Inheritance, Variation and Evolution 4.6.1.8 4.6.2.1 4.6.2.2 4.6.2.3 4.6.2.5 4.6.3.1 4.6.3.2 4.6.3.3 4.6.3.4 4.6.3.5 4.6.3.6 4.6.3.7 4.6.4	Sex determination Variation Evolution Selective Breeding Genetic engineering Theory of evolution Speciation The understanding of genetics Evidence for evolution Fossils Extinction Resistant Bacteria Classification of living organisms	Test at end of topic
<b>HT 4</b>	Ecology (continued) 4.7.2.2 4.7.2.3 4.7.3.1 4.7.3.2	Biodiversity Waste management Land use Deforestation	Test at end of topic

	4.7.3.3 4.7.3.4 4.7.3.5 4.7.5.1 4.7.5.2 4.7.5.3 4.7.5.4	Global warming Impact of environmental change Maintaining Biodiversity Factors affecting food security Farming techniques Sustainable Fisheries Role of Biotechnology	
<b>HT 5</b>		Revision and exam technique practice	
<b>HT 6</b>	NA		GCSE exams

## Recommended Revision Guides for GCSE

Pupils have access to the online textbook through Kerboodle. There are revision materials available on Office 365. Revision guides are available from bookstores such as W.H.Smith and Waterstones. As long as it is AQA Biology GCSE specific and it is in a style that appeals to your son, then it will be suitable. Particularly recommended is the Oxford University Press Revise: AQA GCSE Biology Revision and Practice

[Oxford Revise: AQA GCSE Biology Revision and Exam Practice](#)



## Support available for GCSE Students

Drop in sessions are available if students need to seek advice or support. Students should ask their biology teachers about these sessions.