

Exam Board: AQA
Qualification: GCSE Biology 8461
Assessment Information: 2 exams of 105 minutes each

[Link to official specification](#)

Department Information:

Physics, Biology and Chemistry are popular and successful subjects at Furze Platt. The Department aims to provide a supportive, stimulating, dynamic and academically challenging experience for all students. Over recent years, the Department has gone from strength to strength, and standards and students' results are high. In Year 10, those students studying the Separate Biology GCSE course will receive 4 hours of Biology per fortnight.

ACHIEVE in the curriculum:

*The curriculum has been designed with the ACHIEVE values at its core. Lessons have been written to encourage **ambition** and have also been written with the intent of being enjoyable and giving opportunities for students to celebrate their own successes. **Collaboration** is a key aspect of the scientific method and students will develop this and their **versatility** through the use of class practical activities, as well as through paired and group classwork. Students will develop **integrity** through their completion of independent home learning and through self-marking and peer-marking their work. Students will develop **endurance** through the completion of consolidatory activities such as past exam papers.*

Curriculum Aims and Intent:

The AQA GCSE Biology course is intended to:

- **Foster a deeper understanding of biology:** *By the end of the course, learners should have a comprehensive grasp of key biological principles and be able to explain how these relate to real-world applications in fields like medicine, agriculture, and environmental science.*
- **Promote scientific inquiry and investigation:** *The course encourages students to develop practical skills, such as using microscopes, conducting experiments, and analysing data. Through these activities, learners gain insight into scientific methods and how biological knowledge is constructed and validated.*
- **Prepare students for further study:** *The course lays the foundation for learners interested in pursuing further studies in biology, including A-levels or vocational qualifications, or careers in biology-related fields such as healthcare, biotechnology, and environmental science.*
- **Equip students with transferable skills:** *Learners are trained to think critically, solve problems, analyse information, and communicate scientific ideas effectively, all of which are key skills for future academic and professional success.*
- **Increase awareness of biology's impact on society:** *The course emphasizes the relevance of biology in daily life, from understanding how our bodies work to appreciating the challenges related to health, food security, and climate change.*

By the end of the AQA GCSE Biology course, students will:

- *Understand the structure and function of biological systems at molecular, cellular, and organism levels.*
- *Appreciate the processes and mechanisms that sustain life, such as respiration, photosynthesis, and homeostasis.*
- *Grasp the principles of genetics and evolution, including how variation leads to adaptation and biodiversity.*
- *Be able to explain how biological knowledge is applied in medicine, agriculture, and environmental management.*
- *Understand the importance of evidence and experimentation in building scientific knowledge.*
- *Recognise how human activity affects ecosystems and the steps we can take to mitigate negative impacts.*

Resources:

- Oxford University Press GCSE Textbook (available on Kerboodle or Amazon) <https://www.amazon.co.uk/AQA-GCSE-Biology-Student-Book/dp/0198359373>
- Revision guide for Separate Science: <https://www.amazon.co.uk/AQA-GCSE-Biology-Revision-Guide/dp/0198359403>
- Oxford University Press GCSE Biology workbook (Higher or Foundation)
- Kerboodle <https://kerboodle.com>
- BBC Bitesize <https://www.bbc.co.uk/bitesize>
- GCSEPod
- Focus eLearning (useful for practicals)
- PMT (for past paper questions) <https://www.physicsandmathstutor.com/biology-revision/gcse-aqa/>

How we keep parents informed:

Year 11 - Progress reports are published 4 times per year, in October, December, February and March, with a face-to-face parents' evening in October.

How parents can help their child:

Regularly check Class Charts to keep track of homework that has been set and make sure that test dates are noted

Assist with homework where possible and make sure that students are revising for tests using revision guides, Kerboodle and BBC Bitesize

Purchase revision guides and workbooks (via Amazon or Parentmail)

Encourage the completion and marking of past paper questions

Liaise with teachers and attend Parents' evening

What we study and when:					
Term	Unit, Topic or Summary of Work Covered	Knowledge, Understanding & Skills Developed	ACHIEVE / Personal Development Focus	How The Work Is Assessed	Careers Links
1	B12: Homeostasis	<ul style="list-style-type: none"> • Simple Homeostasis Concepts: Comprehend the general idea of homeostasis and why it is crucial for maintaining stable internal conditions. • Temperature Regulation: Understand the simple mechanisms of how the body maintains a stable temperature, including sweating and shivering. • Fundamentals of Blood Glucose Control: Grasp the basic roles of insulin and glucagon in managing blood glucose levels. • Kidney Function Overview: Know the basic function of the kidneys in filtering blood and producing urine, and the role of ADH in water balance. • Kidney Transplants and Dialysis: An evaluation of both procedures. 	<p>Versatility: Application of theoretical concepts.</p> <p>Ambitious: Understanding negative feedback mechanisms and the process of ultrafiltration in the kidneys.</p> <p>Integrity: Discussion regarding kidney transplants and dialysis.</p>	<p>This chapter will be assessed in an end-of topic test.</p> <p>There will be a longer response question (6 marker) on kidney transplants vs. dialysis.</p>	<ul style="list-style-type: none"> • Endocrinologist • Biomedical Scientist • Neuroscientist • Kidney Specialist (Nephrologist) • Physiologist • Pharmacologist • Nutritionist/Dietitian • Medical Doctor
1 + 2	B13: Reproduction	<ul style="list-style-type: none"> • Understanding Types of Reproduction: Distinguishing between asexual reproduction (involving one parent and resulting in genetically identical offspring) and sexual reproduction (involving two parents and resulting in genetic variation). • Meiosis and Gamete Formation: Grasping the process of meiosis, which produces gametes (sperm and eggs) with half the number of chromosomes, and how this leads to genetic diversity. • DNA Structure and Function: Understanding the structure of DNA, how it encodes genetic information, and the role of chromosomes and genes in inheritance. • Gene Expression and Mutations: Comprehending how genes are expressed to produce proteins and 	<p>Versatility: Application of theoretical concepts.</p> <p>Ambitious: Completion of genetic diagrams to show inheritance of characteristics.</p> <p>Integrity: Discussion</p>	<p>This chapter will be assessed in an end-of topic test.</p> <p>There will be a longer response question (6 marker) on embryo screening.</p>	<ul style="list-style-type: none"> • Genetic Counsellor • Embryologist • Reproductive Health Specialist • Fertility Specialist • Pharmaceutical Researcher • Medical Geneticist • Public Health Educator • Reproductive Biologist • Forensic Biologist (DNA Analyst)

		<p>how mutations can alter genetic information, sometimes leading to variations or diseases</p> <ul style="list-style-type: none"> • Genetic Inheritance: Learning the basics of how traits are inherited through dominant and recessive alleles and using Punnett squares to predict genetic outcomes. • Embryo screening: Processes involved and concerns and issues associated with embryo screening. 	regarding inheritance of disorders and embryo screening.		
3	B14: Variation and Evolution	<ul style="list-style-type: none"> • Principles of inheritance and genetic variation. • Process of evolution by natural selection. • What selective breeding is and its benefits and risks. • Potential benefits and problems associated with genetic engineering and cloning • Ethical considerations for new genetic technologies 	<p>Versatility: Application of theoretical concepts.</p> <p>Ambitious: Understand the process of genetic engineering and cloning.</p> <p>Integrity: Ethical considerations of selective breeding and cloning.</p>	<p>This chapter will be assessed in an end-of topic test.</p> <p>There will be a longer response question (6 marker) on natural selection.</p>	<ul style="list-style-type: none"> • Evolutionary Biologist • Geneticist • Palaeontologist • Conservation Biologist • Biomedical Scientist • Bioinformatics Specialist • Field Biologist • Genetic Engineer • Ecologist • Forensic Scientist
4	B15: Genetics and Evolution	<ul style="list-style-type: none"> • Understand the History of Genetics: Students should be able to outline the key milestones in the history of genetics, including the work of early scientists such as Gregor Mendel and the development of modern genetic theory. • Explain Theories of Evolution: Students should be able to describe the major theories of evolution, including Darwin's theory of natural selection and other evolutionary ideas such as Lamarckism, and understand how these theories explain the diversity of life. • Evaluate the Acceptance of Darwin's Ideas: Students should be able to discuss how Darwin's ideas on 	<p>Versatility: Application of theoretical concepts.</p> <p>Ambitious + Integrity: Completion of ILT.</p>	<p>This chapter will be assessed in an end-of topic test.</p> <p>There will be a longer response question (6 marker) on isolation and genetic variation.</p>	<ul style="list-style-type: none"> • Evolutionary Biologist • Geneticist • Palaeontologist • Conservation Biologist • Biomedical Scientist • Bioinformatics Specialist • Field Biologist • Genetic Engineer • Ecologist • Forensic Scientist

		<p>evolution were initially received and later accepted by the scientific community.</p> <ul style="list-style-type: none"> • Understand Evolution and Speciation: Students should be able to explain the processes of evolution and speciation, including how new species arise through mechanisms such as natural selection, genetic drift, and geographical isolation. • Discuss Fossils and Extinction: Students should be able to explain the significance of fossils in understanding evolutionary history, how they provide evidence for past life forms, and the processes that lead to extinction. • Understand Antibiotic Resistance: Students should be able to describe how antibiotic-resistant bacteria develop through natural selection, the impact of antibiotic misuse and overuse, and strategies to manage and prevent the spread of antibiotic resistance. • Explore Classification Systems: Students should be able to explain the importance of classification in biology, understand the principles of taxonomic classification, and recognise how classification systems are used to organise and categorise living organisms based on their evolutionary relationships. 			
ILT	B16: Adaptations, Interdependence and Competition	<ul style="list-style-type: none"> • Adaptations: Learn how organisms are adapted to their environments through specific features and behaviours, such as camouflage, mimicry, and structural adaptations. • Interdependence in Ecosystems: Grasp the concept of interdependence among organisms within ecosystems, including food chains, webs, and the flow of energy. • Competition for Resources: Understand how competition for resources (e.g., food, water, space) affects populations, leading to adaptations and evolutionary changes. 	<p>Ambitious + Integrity: Completion of ILT.</p> <p>Collaboration: Completion of a required practical.</p> <p>Versatility: Application of theoretical concepts.</p>	<p>This chapter will be assessed in an end-of topic test.</p> <p>There will be a longer response question (6 marker) on the required practical (random sampling).</p>	<ul style="list-style-type: none"> • Ecologist • Environmental Scientist • Wildlife Biologist • Conservationist • Zoologist • Botanist • Environmental Educator - • Agricultural Scientist

		<ul style="list-style-type: none"> • Ecosystem Stability: Learn about the factors that contribute to the stability of ecosystems, being able to describe biotic and abiotic factors. • Distribution and abundance: How to measure the distribution and abundance of living things in their natural environment. 			
5	B17: Organising an Ecosystem	<ul style="list-style-type: none"> • Understand and describe various feeding relationships within an ecosystem, including producers, consumers, and decomposers. • Explain the processes and significance of material cycling, including the water, carbon, and nitrogen cycles. • Analyse the carbon cycle and its implications on life and the global environment. • Investigate factors influencing rates of decomposition and their impact on ecosystem health. • Apply knowledge of ecosystem dynamics to discuss human impact on natural cycles and propose sustainable solutions. 	<p>Versatility: Application of theoretical concepts.</p> <p>Collaboration: Completion of a required practical.</p>	<p>This chapter will be assessed in an end-of topic test.</p> <p>There will be a longer response question (6 marker) on the carbon cycle.</p>	<ul style="list-style-type: none"> • Ecologist • Environmental Scientist • Wildlife Biologist • Conservation Biologist • Marine Biologist • Forestry Technician • Environmental Consultant • Agricultural Scientist • Landscaper/Gardener • Ecosystem Manager
5 + 6	B18: Biodiversity and Ecosystems	<ul style="list-style-type: none"> • Comprehend the effects of the human population explosion on resources and the environment. • Analyse the causes and consequences of different types of pollution (land, water, and air) and global warming. • Evaluate the impact of human-induced changes on ecosystems and biodiversity. • Understand the ecological significance of trophic levels, biomass, and energy transfers within food webs. • Explore strategies for sustainable food production and enhancing food security globally. 	<p>Ambitious + Integrity: Completion of ILT.</p> <p>Endurance: Revision for exams.</p>	<p>This chapter will be assessed in an end-of topic test.</p>	<ul style="list-style-type: none"> • Ecologist • Environmental Scientist • Wildlife Biologist • Conservation Biologist • Marine Biologist • Forestry Technician • Environmental Consultant • Agricultural Scientist • Landscaper/Gardener • Ecosystem Manager • Parks and Recreation Manager