

AQA Biology 8461

<https://www.aqa.org.uk/subjects/science/gcse/biology-8461>

	What pupils will learn	How it builds on learning
Year 10	Cell Biology Eukaryotes and prokaryotes, animal and plant cells, cell specialisation, cell differentiation, microscopy, culturing micro-organisms, chromosomes, mitosis, stem cells, transport in cells	Cells have been taught throughout KS3; this is taught as the first unit due to the fundamental nature of the concepts covered which feed into the rest of the GCSE content.
	Organisation Principles of organisation, human digestive system, heart and blood vessels, blood, coronary heart disease, health issues, effects of lifestyle on disease, cancer, plant tissues, plant organ systems	A unit which follows on from a number of the KS3 biology units, in particular Core Biology, Breathing and Respiration, Food and Digestion and Understanding Health.
	Infection and response Communicable diseases (including viral, bacterial, fungal and protist diseases), human defence systems, vaccination, antibiotics and painkillers, discovery and development of drugs, monoclonal antibodies, uses of monoclonal antibodies, plant disease, plant defence response <i>Foundation tier</i> Students do not study monoclonal antibodies. Students do not study detection of plant diseases.	Aspects of this topic were covered in much less detail in the Understanding Health topic. This unit goes into the greater detail needed for the GCSE level.
	Bioenergetics Photosynthesis (reaction, rates and uses of glucose), aerobic and anaerobic respiration, responses to exercise, metabolism <i>Foundation tier</i> Students do not study how the factors which affect photosynthesis interact. Students do not look at the inverse square law and photosynthesis.	Building on both the Photosynthesis and Breathing and Respiration units, this unit focuses on energy use and transfer in biological systems - a key concept that reappears throughout the course.
	Ecology Communities, abiotic factors, biotic factors, adaptations, levels of organisation of an ecosystem, cycling of materials, decomposition, impact of environmental change, biodiversity, trophic levels in an ecosystem, food production <i>Foundation tier</i> Students do not study the impacts of environmental change.	Follows on from the Year 7 Living World unit and parts of several other units. Taught in the summer term due to the outdoor nature of one of the required practicals.
	What pupils will learn	How it builds on learning
Year 11	Ecology Waste management, land use, deforestation, global warming, maintaining biodiversity	Follows on from the Year 7 Living World unit and parts of several other units.

	<p>Inheritance, variation, and evolution Sexual and asexual reproduction, advantages and disadvantages of sexual and asexual reproduction, meiosis, DNA and the genome, DNA structure, genetic inheritance, inherited disorders, sex determination, variation, evolution, selective breeding, genetic engineering, cloning, development of theory of evolution, speciation, evidence for evolution, fossils, extinction, resistant bacteria, classification</p> <p><i>Foundation tier</i> <i>Students look at the structure of DNA in a lot less detail.</i> <i>Students do not look at the main steps of genetic engineering.</i></p>	<p>Builds on several KS3 units but in much greater detail. Taught in Year 11 when students have a stronger grounding in biological concepts after their Year 10 studies.</p>
	<p>Homeostasis Homeostasis, human nervous system, endocrine system, control of blood glucose, maintaining water and nitrogen balance in the body, hormones in reproduction, contraception, hormone treatments for infertility, negative feedback, plant hormones</p> <p><i>Foundation tier</i> <i>Students do not study the role of glucagon in maintaining blood sugar levels.</i> <i>Students do not study the role of ADH in controlling blood water levels.</i> <i>Students do not study hormone treatments for infertility or negative feedbacks.</i> <i>Students do not study the uses of plant hormones.</i></p>	<p>The unit follows on from the Core Biology and Reproduction units as well as other lessons within different units they have covered at KS3. The understanding of many elements of the Year 10 GCSE course are important to enable students to fully understand this unit.</p>

Assessment

Students undertake formative assessments at the end of each topic. The aim of these is for students to be able to improve their understanding of the topic that they have just completed and to consolidate their learning. Students also undertake summative tests. In year 10 students have an exam after the Christmas holidays which focuses on Electricity and Radioactivity. Students have another exam at the end of year 10 which covers all content covered in year 10 (content studied in year 10 is primarily Paper 1 content). In year 11 students take a mock exam in December, which covers paper 1 material, giving students an opportunity to revise and consolidate. Students then undertake a second mock in March which covers all the content covered in year 11.

Supporting your child

What you can do at home:

Parents can support students in a number of ways, including:

- Supporting students with revision for tests – revision resources for these are provided via SatchelOne and Teams, along with instructions. It can be really helpful if parents can guide the students through using these resources.
- Reading about science – resources for could include texts provided by the school library or BBC Science Focus magazine.

Equipment:

In addition to standard school equipment, students should bring a green pen and a calculator to lessons.

Extended learning

Homework policy:

Homework set is meaningfully related to classwork and includes: planning and writing up experiments, reading, note-taking and answering questions to aid understanding, and extending understanding of a topic through research and revision for the end of unit tests and end of year examinations. Homework will usually be set every two weeks for each subject, but the exact frequency of this is at the discretion of the teacher

Clubs/ Enrichment opportunities:

Enrichment opportunities are provided throughout year 10 and 11. All students are given the opportunity to undertake the British Physics Olympiad.

Extended study suggestions and reading lists:

The library has a range of texts and study guides to support learning. The BBC Bitesize for GCSE Science website contains up-to-date subject content that can be used for revision.

Possible trips and visits:

A number of STEM based trips are typically offered over the course of the year.