

GCSE Biology (Separate)

You are studying towards **3 separate GCSEs in Chemistry, Physics and Biology.**

There is no coursework element to the GCSEs. The final GCSE grade is based on the terminal exams only. You will sit two GCSE written exams for each science.

For Biology you will require knowledge and understanding of the following topics;

- ***Cell structure and microscopes***
 - ***Transport into and out of cells***
 - ***Cell division and stem cells***
 - ***Cell organisation and digestive system***
 - ***Animal transport and exchange systems***
 - ***Respiration***
 - ***Photosynthesis***
 - ***Plant transport and exchange systems***
 - ***Disease***
 - ***Nervous system***
 - ***Endocrine system***
 - ***Homeostasis***
 - ***Genes and Inheritance***
 - ***Variation and evolution***
 - ***Manipulating genes***
 - ***Ecosystems***
 - ***Human impact on the environment***
- Taught in year 9
- Taught in year 10
- Taught in year 11



There is no coursework element to the GCSEs.

GCSE grades awarded are based solely on written exam papers at the end of Year 11.

The two final exams for biology will be equally weighted and will be **1hr 45min** in length.

1st Exam paper will cover: *Cell Biology; Organisation; Infection and response; and Bioenergetics.*

2nd Exam paper will cover: *Homeostasis and response; Inheritance and evolution; and Ecology.*

Full details of the AQA Biology GCSE course (8461), including all subject content and assessment criteria can be found at <https://www.aqa.org.uk/subjects/science/gcse/biology-8461/specification-at-a-glance>

Your knowledge and understanding will be regularly checked during lessons by teacher questioning, assessed tasks and topic tests.

We expect you to spend time independently reviewing lesson content after each lesson. You have access to an online course textbook (including summary and exam style questions) and consolidation activities on www.kerboodle.com that you should be using regularly.

You should also be making use of online revision resources such as www.GCSEpod.com, www.physicsandmathstutor.com, www.senecalearning.com and lots of engaging videos on YouTube such as 'free science'.

Practical work:

Students following **SEPARATE BIOLOGY GCSE** should be proficient in the following SKILLS:

AT 1 Use of appropriate apparatus to make and record a range of measurements accurately, including length, area, mass, time, temperature, volume of liquids and gases, and pH

AT 2 Safe use of appropriate heating devices and techniques including use of a Bunsen burner and a water bath or electric heater

AT 3 Use of appropriate apparatus and techniques for the observation and measurement of biological changes and/or processes.

AT 4 Safe and ethical use of living organisms (plants or animals) to measure physiological functions and responses to the environment

AT 5 Measurement of rates of reaction by a variety of methods including production of gas, uptake of water and colour change of indicator.

AT 6 Application of appropriate sampling techniques to investigate the distribution and abundance of organisms in an ecosystem via direct use in the field

AT 7 Use of appropriate apparatus, techniques and magnification, including microscopes, to make observations of biological specimens and produce labelled scientific drawings

AT 8b Use of appropriate techniques and qualitative reagents to identify biological molecules and processes in more complex and problem-solving contexts including continuous sampling in an investigation

Throughout the GCSE course you will carry out the following **10 REQUIRED PRACTICALS** to enable you to demonstrate the skills stated above:

- 1. Use a light microscope to observe, draw and label a selection of plant and animal cells.**
- 2. Investigate the effect of antiseptics or antibiotics on bacterial growth using agar plates and measuring zones of inhibition.**
- 3. Investigate the effect of a range of concentrations of salt or sugar solutions on the mass of plant tissue.**
- 4. Use qualitative reagents to test for a range of carbohydrates, lipids and proteins.**
- 5. Investigate the effect of pH on the rate of reaction of amylase enzyme.**
- 6. Investigate the effect of light intensity on the rate of photosynthesis using an aquatic organism such as pondweed.**
- 7. Plan and carry out an investigation into the effect of a factor on human reaction time.**
- 8. Investigate the effect of light or gravity on the growth of newly germinated seedlings.**
- 9. Measure the population size of a common species in a habitat / Use sampling techniques to investigate the effect of a factor on the distribution of this species.**
- 10. Investigate the effect of temperature on the rate of decay of fresh milk by measuring pH change.**

Knowledge and understanding of these practical skills will be assessed through questions in the written GCSE examinations. You will not be expected to remember specific data/results.