

GCSE Trilogy Science (Biology)

You are studying towards **2 GCSEs in combined science** (AQA Trilogy Science GCSE)

You will have separate lessons in each of the three sciences and sit separate exams for each science, however you will only receive two combined science GCSE grades (9-1).

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.

Each paper will be equally weighted and will be **1hr 15min** 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 Combined Science: Trilogy GCSE (8464), including all subject content and assessment criteria can be found at

<https://www.aqa.org.uk/subjects/science/gcse/combined-science-trilogy-8464/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 **TRILOGY SCIENCE GCSE (Biology)** 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

Throughout the GCSE course you will carry out the following **7 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. N/A for Trilogy GCSE*
- 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. N/A for Trilogy GCSE*
- 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. N/A for Trilogy GCSE*

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.