

Biology – National 4 (SCQF level 4)

Biology, the study of living organisms, plays a crucial role in our everyday existence, and is an increasingly important subject in the modern world. Advances in technologies have made this varied subject more exciting and relevant than ever.

Course Aims

The Course develops skills in scientific inquiry, investigation and analytical thinking, along with knowledge and understanding. Learners will gain an understanding of biology, and develop this through a variety of approaches, including practical activities.

The Course has **four** mandatory Units including the Added Value Unit. The first three Units listed below are designed to provide progression to the corresponding Units at National 5.

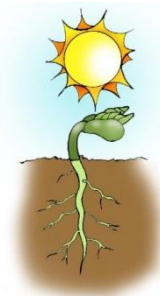


Cell Biology

The key areas covered are: cell division and its role in growth and repair, DNA, genes and chromosomes, therapeutic use of cells, properties of enzymes and use in industries, properties of microorganisms and use in industries, photosynthesis — limiting factors, factors affecting respiration, and controversial biological procedures.

Multicellular Organisms

The key areas covered are: sexual and asexual reproduction and their importance for survival of species, propagating and growing plants, commercial use of plants, genetic information, growth and development of different organisms, and biological actions in response to internal and external changes to maintain stable body conditions.



Life on Earth



The key areas covered are how animal and plants species depend on each other, impact of population growth and natural hazards on biodiversity, nitrogen cycle, fertiliser design and environmental impact of fertilisers, adaptations for survival, and learned behaviour in response to stimuli linked to species survival.

Recommended Entry

The Course is suitable for learners who have experienced learning across the sciences experiences and outcomes at levels 3 and have demonstrated a satisfactory understanding and knowledge in class work and assessments.

Internal assessments

Unit by Unit assessment

Unit-by-Unit assessment in the form of an experiment/practical investigation and a report for Outcome 1, and an investigation report and questions for Outcome 2.

Added Value Unit: Assignment

The assessment method for this Unit will be an assignment. Learners will carry out a research investigation in which they will draw on and apply knowledge and skills they have learned during the Course. Learners will investigate a topical issue in biology selected from *Cell Biology*, *Biology: Multicellular Organisms* or *Biology: Life On Earth* key areas.

Homework:

Learners will be required to complete regular homework tasks to develop their skills and support their knowledge and understanding, within the context each unit of work.

Progression:

- Course that could be available in S5/6
- Vertical progression is possible to SCQF level 5 – Biology National 5
- Lateral progression is possible to other qualifications in the sciences.
- This Course can also assist entry to employment, training and further education.

Biology National 5 (SCQF: level 5)

- Short description of course

Biology, the study of living organisms, plays a crucial role in our everyday existence, and is an increasingly important subject in the modern world. Advances in technologies have made this varied subject more exciting and relevant than ever.

- Course Aims

In this course, learners will develop skills of scientific inquiry, investigation and analytical thinking, along with knowledge and understanding in the context of:



Cell Biology

The key areas covered are: cell structure; transport across cell membranes; producing new cells; DNA and the production of proteins; proteins and enzymes; genetic engineering; photosynthesis and respiration.

Multicellular Organisms

The key areas covered are: cells, tissues and organs; stem cells and meristems; control and communication; reproduction, variation and inheritance; the need for transport and effects of life-style choices on animal transport and exchange systems.

Life on Earth

The key areas covered are: biodiversity and the distribution of life; energy in ecosystems; sampling techniques and measurement of abiotic and biotic factors; adaptation, natural selection and the evolution of species and human impact on the environment

- Recommended Entry

The Course is suitable for learners who have experienced learning across the sciences experiences and outcomes at levels 3 & 4 and have demonstrated a secure understanding and knowledge in class work and Unit assessments.

Assessment:

- Internal assessments

Unit-by-Unit assessment in the form of an experiment/practical investigation and a report for Outcome 1, and an investigation report and questions for Outcome 2. The question paper will contain restricted and extended response questions.

- External assessments

Course assessment

Component 1 — question paper 80 marks

The question paper will have two Sections.

Section 1, titled 'Objective Test', will have 20 marks.

Section 2, titled 'Paper 2', will contain restricted and extended response questions and will have 60 marks. Marks will be distributed approximately proportionately across the Units. The majority of the marks will be awarded for applying knowledge and understanding. The other marks will be awarded for applying scientific inquiry, scientific analytical thinking and problem solving skills.

Component 2 — assignment

The assignment will have 20 marks (20% of the total marks).

Courses from National 4 to Advanced Higher include assessment of added value. At National 5 the added value will be assessed in the Course assessment.

Learners will draw on, extend and apply the skills they have learned during the Course. This will be assessed within a question paper and an assignment, requiring demonstration of the breadth of skills, knowledge and understanding acquired from across the Units and how they can be applied in unfamiliar contexts and/or integrate.

Homework:

- Details of the homework

Learners will be required to complete regular homework tasks to develop their skills and support their knowledge and understanding, within the context each unit of work.

Progression:



- Course that could be available in S5/6
- Vertical progression is possible to SCQF level 6 – Higher Biology . Higher Human Biology
- Lateral progression is possible to other qualifications in the sciences.
- This Course can also assist entry to employment, training and further education.