Biology National 4

AWARD RECEIVED:

You will either be presented for National 4 Biology at the end of the year on passing the required units.

ENTRY LEVEL: What do I need to do it?

Ideally you will have studied Biology or Science in S2/3 or Science, but this is not essential.

COURSE CONTENT: What will I learn?

The purpose of the Course is to develop learners' interest and enthusiasm for biology in a range of contexts. The skills of scientific inquiry and investigation are developed, throughout the Course, by investigating the applications of biology. This will enable learners to become scientifically literate citizens, able to review the science-based claims which they will meet.

The Course covers major areas of biology ranging from cellular to whole organism and up to ecosystems. The key areas of biodiversity, interdependence, body systems and cells and inheritance are developed through the Course.

Cell Biology

In this Unit, learners will develop skills of scientific inquiry, investigation and analytical thinking, along with knowledge and understanding in the context of cell biology. Learners will research issues and communicate information related to their findings, which will develop skills of scientific literacy. 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
- Controversial biological procedures.

Multicellular Organisms

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

multicellular organisms. Learners will research issues and communicate information related to their findings, which will develop skills of scientific literacy.

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
- Biological actions in response to internal and external changes to maintain stable body conditions

Life on Earth

In this Unit, learners will develop skills of scientific inquiry, investigation and analytical thinking, along with knowledge and understanding in the context of life on Earth. Learners will research issues and communicate information related to their findings, which will develop skills of scientific literacy. 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
- Learned behaviour in response to stimuli linked to species survival

Added Value Unit: Biology Assignment

In this Unit, learners will draw on and extend the skills they have learned from across the other Units, and demonstrate the breadth of knowledge and skills acquired, in unfamiliar contexts and/or integrated ways.

ASSESSMENT: How will I be assessed?

There is no external examination for this course. Units 1 to 3 are internally assessed using a closed book assessment that requires learners to be able to:

apply skills of scientific inquiry and draw on knowledge and understanding of the key areas of this Unit to carry out an experiment

draw on knowledge and understanding of the key areas of this Unit and apply scientific skills

The Added Value Unit Learners will draw on and apply the skills and knowledge they have learned during the Course. They will carry out an in-depth investigation on an unfamiliar and/or integrated context and complete a structured report.

HOMEWORK:

Regular homework contains numeracy, literacy and problem-solving tasks and aims to develop skills and consolidate knowledge and understanding. It may also include revision of class work, completion of unfinished work and opportunities to complete small projects at home on selected areas of the curriculum. You will be given the chance to present your findings to your peers.

PROGRESSION IN THE SENIOR PHASE:

National 5 Biology or National 5 Laboratory Sciences.

COSTS:

Pupils may be asked for replacement costs for lost or broken equipment.