



Sandwell Academy

Advanced General Certificate of Education (AS and A2) BIOLOGY

WHY BIOLOGY?

The opportunities for students of Science, on completion of full-time education, are enormous. There are many possible careers within the scientific world and qualifications in Science subjects are acceptable as an entry into many other careers.

Science students at Sandwell Academy will be prepared to move into Higher Education courses and careers in a wide variety of different fields including;

Physiotherapy	Forensic Science
Pharmacy	Veterinary Science
Medicine	Research Chemistry
Nursing	Aeronautics
Sports Science	Biological Sciences
Chemical Engineering	

The Science courses offered at Sandwell Academy are designed to provide academic and vocational experiences. They will prepare students for their choice of career in both the world of work and Higher Education

SPECIFIC ENTRY REQUIREMENTS

- Grade 6 in all of the examination units for GCSE Combined Science (Trilogy) or GCSE Biology (Separate Science)
- Grade 5 in GCSE Mathematics

COURSE DETAILS

OCR specification H020 AS Biology: 4 modules

1 Development of Practical Skills in Biology Practical Endorsement

2 Foundations in Biology Written examination

This module will enable you to develop an understanding of some of the fundamental concepts, techniques and procedures in Biology. You will look at Cell division as a fundamental process, necessary for reproduction, growth and repair. You will also consider the structure and function of proteins,

carbohydrates and lipids as well as having the opportunity to understand the structure of nucleic acids and their role in the storage of genetic information.

3 Exchange and Transport

Written examination

You will study the structure and function of gas exchange and transport systems in a range of animals and plants. You will consider the significance of surface area to volume ratio in determining the need for ventilation, gas exchange and transport systems in multicellular organisms.

4 Biodiversity, Evolution and Disease

Written examination

You will study the biodiversity of organisms, you will consider how they are classified and the ways in which biodiversity can be measured and compared. You will also gain an understanding of pathogenic organisms and the way in which plants and animals have evolved defences to deal with disease. Furthermore you will be indicted to the impact of evolution of these pathogens on the treatment of disease.

Examinations:

1 Breadth in Biology	Content from modules 1-4	Weighting: 50%
2 Depth in Biology	Content from modules 1-4	Weighting: 50%

OCR specification H420 A2 Biology: 2 new modules alongside 4 modules from AS

5 Communications, Homeostasis and Energy

Written examination

You will outline the need for communication systems within multicellular organisms and describe the roles of sensory receptors in mammals. A detailed explanation of the liver, kidneys and lungs is included. You will be able to define the terms endocrine gland, exocrine gland and hormone as well as looking at the hormonal and nervous mechanisms involved in the control of heart rate in humans. You will outline why plants, animals and microorganisms need to respire as well as an analysis of photosynthesis.

6 Genetics, Evolution and Ecosystems

Written examination

You will develop an awareness of protein synthesis in terms of DNA coding. You will be able to explain the terms allele, locus, phenotype, genotype, dominant, co dominant and recessive. You will also study the advantages and disadvantages of cloning, enzyme immobilisation and the steps involved in sequencing a genome .You will explain that genetic engineering involves the extraction of genes from one organism, or the manufacture of genes, in order to place them in another organism. You will also cover ecology, plant and animal responses.

Examinations:

1 Biological Processes	Content from modules 1, 2, 3 and 5 Weighting: 37%
2 Biological Diversity	Content from modules 1, 2, 4 and 6 Weighting: 37%
3 Unified Biology	Content from modules 1-6 Weighting: 37%