



International GCSE in Biology (4BI1)

Edexcel exam board (First examination June 2019)

The Biology Course

- **Structure:** the International GCSE in Biology is a linear qualification. Two written examination papers are taken at the end of the course of study.
- **Content:** Practical based, relevant, engaging and up to date.
- **Approach:** a solid basis for students wishing to progress to the IB Diploma Biology or equivalent further study in the subject.

Aims and objectives

- learn about unifying patterns and themes in biology and use them in new and changing situations
- acquire knowledge and understanding of biological facts, terminology, concepts, principles and practical techniques
- apply the principles and concepts of biology, including those related to the applications of biology, to different contexts
- evaluate biological information, making judgments on the basis of this information
- appreciate the practical nature of biology, developing experimental and investigative skills
- based on correct and safe laboratory techniques

Aims and objectives (cont...)

- analyse, interpret and evaluate data and experimental methods, drawing conclusions that are consistent with evidence from experimental activities and suggesting possible improvements and further investigations
- recognise the importance of accurate experimental work and reporting scientific methods in biology
- select, organise and present relevant information clearly and logically using appropriate vocabulary, definitions and conventions
- develop a logical approach to problem solving in a wider context
- select and apply appropriate areas of mathematics relevant to biology as set out under each topic

Cells & Microbes

- Identify the characteristics of life
- Investigate how substances move in and out of cells
- Prepare slides and examine cells & tissues under the microscope
- Differentiate between the levels of organization
- Classify living organisms

Human Nutrition

- Identify the components of a balanced diet with biochemical tests
- Learn how different nutrients affect our growth and health
- Discover what happens to food as it moves from mouth to anus
- Explain how enzymes control all biological reactions

Respiration and Gas Exchange

- Find out the difference between respiration and breathing
- Measure the respiration rate of different organisms
- Examine how the respiratory system works
- Investigate what happens when oxygen is in short supply
- Watch the effects of smoking

Human Transport

- Dissect and examine a mammalian heart and its blood vessels
- Investigate the effect of exercise of heart rate
- Learn how blood flows around the body
- Find out how our immune system protects us from infectious diseases
- Know how blood clots

Homeostasis & Nerves

- Find out why it is so important to control our internal environment
- Learn about the endocrine system and what hormones are
- Test how sensitive you are
- Differentiate between different nerve cells and find out what a reflex is

Ecology

- To estimate population size of organisms and communities
- To understand the relationships that exist within an ecosystem
- To relate abiotic and biotic factors to the existence of organisms

Plants

- To investigate the effect of environmental factors on the rate of photosynthesis
- To explain how tissues in plants are adapted for specific functions
- To appreciate the importance of plants in the circle of life

Human influences on the environment

- To evaluate our impact on the environment and other organisms
- To identify strategies that can increase food production
- To formulate strategies to reduce the harm done to Planet Earth

Reproduction and Inheritance

- To understand how new organisms are produced
- To predict the probability of inheriting certain characteristics
- To appreciate the complexity of our genetic make up
- To isolate DNA from organisms

Cloning and Genetic Modification

- To examine the technologies that can be used to manipulate our DNA
- To describe how GMOs and clones are produced
- To evaluate the value, potential and ethics of genetic manipulation