



# IBH Level Biology – L6

## Curriculum Intent

Biology is the study of life and biologists attempt to understand the living world at all levels using many different approaches and techniques. At one end of the scale is the cell, its molecular construction and complex metabolic reactions. At the other end of the scale biologists investigate the interactions that make whole ecosystems. The IBH Biology curriculum gives students the opportunity to:

- acquire and apply knowledge, methods and techniques that characterize Biology and technology
- develop an ability to analyse, evaluate and synthesize biological information
- develop experimental and investigative scientific skills including the use of current technologies
- become critically aware, as global citizens, of the ethical implications of using science and technology
- develop an appreciation of the possibilities and limitations of science and technology

## Entry requirements

To study IBH Biology students require a grade 6 in GCSE Biology or a 66 in GCSE Combined Science they also require a 5 in GCSE Maths

### Students will learn about: -

#### Autumn Term – Term 1

- Core material (see IBS curriculum)
- The origins of cells
- Viruses
- The kidney

#### Spring Term – Term 2

- Core material (see IBS curriculum)
- Muscles and movement
- Cell respiration
- Photosynthesis

#### Summer Term – Term 3

- Core material (see IBS curriculum)
- DNA, its replication and role in protein synthesis
- Inheritance.

### What does excellence look like?

- Having a good proficiency in solving biological problems, including those that are challenging or unfamiliar.
- Being able to select and apply relevant information, concepts and principles in a wide variety of contexts including the unfamiliar e.g.

#### Term 1:

- Explain the evidence for the endosymbiotic theory
- Explain why the use of collagen in face creams is unlikely to prevent or reduce skin wrinkles.
- Explain adaptations of desert animals to conserve water.

#### Term 2:

- Explain how some herbicides work.
- Explain why dinitrophenol, used in munitions factories in the First World War, led to weight loss in workers.
- Suggest reasons for rigor mortis occurring.

### Knowledge, understanding & Skills

#### Term 1:

##### **In addition to the core material (see IBS curriculum)**

- Explain a plausible hypothesis for the origin of life
- Describe the intermediate stages between non-living matter and the first living cells.
- How viruses vary and exist with so few genes
- The maintenance of constant internal conditions in humans
- Benefits to organisms of maintaining constant internal conditions

#### Term 2:

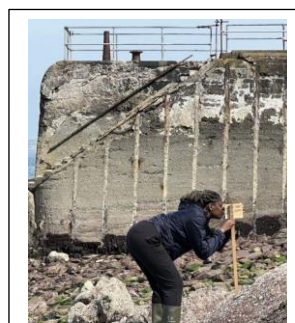
##### **In addition to the core material (see IBS curriculum)**

- How muscles contract and cause movement
- Benefits to animals of having muscle tissue
- The roles of hydrogen and oxygen in the release of energy from cells
- The use and distribution of energy in cells
- The absorption of light and its use in photosynthesis
- The interaction of abiotic factors with photosynthesis

#### Term 3:

##### **In addition to the core material (see IBS curriculum)**

- The production of DNA
- The applications of knowledge of DNA replication in biotechnology
- The inheritance patterns that exist in plants and animals
- The molecular basis of inheritance patterns.



## What does excellence look like? (continued)

### Term 3:

- Suggest why a surprisingly low number of genes were found in the human genome project.

### How will we assess impact?

- Peer, self and teacher assessment in lessons
- Previous lesson recap quiz
- Teacher questioning
- Landmark tasks
- End of Topic tests
- PPE examinations at the end of the L6, mid U6, combined with mini-PPEs during the year

## How can you enhance your learning at home?

- Bioninja
- AES student science website
- Royal Society of Biology

### Suggested homework tasks

- Learn spelling and definitions of key terms.
- Explore group and independent research projects
- Past examination questions practice
- Practical activity preparation, simulations
- Processing and analysis of data from practical activities



## International Opportunities

### Visits Programme

Potential opportunities to engage in science in exchange partner schools exploring different approaches to science and teaching methods

Weeklong visit to FSC Dale Fort, Pembrokeshire to carry out fieldwork

Community lectures on International themes

International day across the school

### Within the curriculum

The Biology IBS Level curriculum is designed to deepen understanding and appreciation of how our International society makes decisions about world scientific issues. Students can compete in the International Biology Olympiad.

Students are encouraged to research each theme beyond lessons and set work to ensure that they can draw on a worldwide knowledge of the skills, techniques and theoretical understanding required for the further study of Biological Sciences at an International level at global universities