



IBH Level Biology – U6

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 IB Biology curriculum gives students the opportunity to:

- acquire and apply a body of knowledge, methods, tools and techniques that characterize science
- develop an ability to analyse, evaluate and synthesize biological information and claims
- 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

Biology, meaning the science of all life, is a late notion – Leon Kass

Students will learn about: -

Autumn Term – Term 1

- Core material (see IBS curriculum map)
- The cell cycle, how it's controlled and the effects of mutations on this cycle
- Gene expression
- The inheritance of linked and unlinked genes
- The classification of organisms and the interpretation of cladograms

Spring Term – Term 2

- Core material (see IBS curriculum map)
- Cell signalling
- Gametogenesis and the development of the foetus

What does excellence look like?

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

Term 1:

- Solving genetics problems involving epistasis
- Using data to construction of cladograms

Term 2:

- Interpretation of oxygen dissociation curves
- Explanation of why pharmaceutical companies are reluctant to develop new antibiotics and why new antibiotics should be used as little as possible.

Knowledge, understanding & skills

Term 1:

Core IBS material plus:

- The events of each stage of the cell cycle
- Determination and interpretation of mitotic indices
- How genes can be switched on and off
- How gene expression can be changed in cells
- The use of data bases to explore genes and their polypeptide products
- Prediction of genotypic and phenotypic ratios in the inheritance of linked and unlinked genes
- Understanding of the concept of statistical significance

Term 2:

Core IBS material plus:

- How cells distinguish between the many different signals they receive
- The interactions that occur inside animal cells in response to chemical signals
- The processes involved in the production of gametes in animals.
- The stages in development of the foetus.

Higher level material is taught in discrete HL only lessons. However, students should work on developing a sound understanding of the SL material to support this extension work.

How will we assess impact?

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



How can you enhance your learning at home?

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

Suggested homework tasks

- Learn spelling and definitions of key terms.
- 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

Community lectures on International themes

International day across the school

Primary research using student cultural diversity

Within the curriculum

The Biology IB curriculum is designed to deepen understanding and appreciation of how our International society makes decisions about world scientific issues.

Students are encouraged to research each theme beyond lessons and are 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