

## GROUP 4 - BIOLOGY

### NATURE OF BIOLOGY

Biology is the study of life. 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 function.

An interest in life is natural for humans; not only are we living organisms ourselves, but we depend on many species for our survival, are threatened by some and co-exist with many more. This great biodiversity makes biology both an endless source of fascination and a considerable challenge.

Source : IBO, OCC – Biology guide

### AIMS

Through studying biology students should become aware of how scientists work and communicate with each other. While the scientific method may take on a wide variety of forms, it is the emphasis on a practical approach through experimental work that characterizes this subject.

The aims enable students to:

1. appreciate scientific study and creativity within a global context through stimulating and challenging opportunities;
2. acquire a body of knowledge, methods and techniques that characterize science and technology;
3. apply and use a body of knowledge, methods and techniques that characterize science and technology;
4. develop an ability to analyse, evaluate and synthesize scientific information;
5. develop a critical awareness of the need for, and the value of, effective collaboration and communication during scientific activities;
6. develop experimental and investigative scientific skills including the use of current technologies;
7. develop and apply 21st century communication skills in the study of science;
8. become critically aware, as global citizens, of the ethical implications of using science and technology;
9. develop an appreciation of the possibilities and limitations of science and technology;
10. develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge.

### SYLLABUS – OUTLINE

(The syllabus is subject to changes according to the needs and preferences of the class)

#### Year 1

1. Cell Biology
2. Molecular Biology
3. Genetics
4. Ecology
5. Plant Biology (HL only)
6. Nucleic Acids (HL only)
7. Genetics and evolution (HL only)

Year 2
1. Evolution and Biodiversity 2. Human Physiology 3. Human Physiology (OPTION) 4. Metabolism Cell Respiration and Photosynthesis (HL only) 5. Animal Physiology (HL only)

#### SL ASSESSMENT – OUTLINE

Assessment component	Weighing
<b>External assessment</b>  <b>Paper 1 (3/4 hour)</b> 30 multiple choices questions <b>Paper 2 (1 and 1/4 hour)</b> Data-based questions and, short answer and extended response questions on the core <b>Paper 3 (1 hour)</b> Questions on core and SL Option Section A : 2 to 3 extended questions on practical skills, analysis and evaluation on unseen data linked to the core (corresponding to the practicals performed in the 2 years) Section B : Short answer and extended response questions from one option	  <b>20%</b>  <b>40%</b>  <b>20%</b>
<b>Internal assessment</b>  <b>Final report evaluation on the individual investigation</b>	  <b>20%</b>

#### HL ASSESSMENT – OUTLINE

Assessment component	Weighing
<b>External assessment</b> <b>Paper 1 (1 hour)</b> 40 multiple choices questions <b>Paper 2 (2 and 1/4 hour)</b> Data-based questions and, short answer and extended response questions on the core <b>Paper 3 (1 and 1/4 hour)</b> Questions on core, HL material and HL Option Section A : 2 to 3 extended questions on practical skills, analysis and evaluation on unseen data linked to the core (corresponding to the practicals performed in the 2 years) Section B : Short answer and extended response questions from one option	  <b>20%</b>  <b>36%</b>  <b>24%</b>
<b>Internal assessment</b>  <b>Final report evaluation on the individual investigation (10 hours) (20% of the final grade)</b>	  <b>20%</b>