

BIOLOGY – Years 3 & 4 Integrated Programme

INTRODUCTION

The use of molecular biology techniques has opened up great opportunities in improving the quality of human lives and the environment in which we live in. However, we also recognize that these techniques when misused will have equally large and undesirable consequences. A thorough understanding of the principles of biology is essential if we are to counter the threats and make the most of the opportunities available. It is therefore crucial that a biology programme promotes this understanding.

In this programme students are encouraged to develop their problem solving, critical thinking and communication skills. At the same time the curriculum also seeks to meet the affective needs of the students.

In ACS (Independent), there is another challenge to promote the concept of internationalism. Living organisms do not recognize national borders. At the same time, we also recognize that living organisms within the biosphere are interdependent. The consequences of human activities will have impacts beyond national borders. Hence international co-operation is essential to protect the biosphere and its treasure trove of biodiversity. The biology curriculum takes into consideration such challenges and it provides students opportunities to examine such issues.



CURRICULUM GOALS

The curriculum goals of the ACS (Independent) Biology Year 3 & 4 IP Course are based on the four pillars of DISC (D-Diversity, I-Interactions, S-Systems and C-Communications). At the end of the course, students should be able to

- 1. demonstrate understanding and appreciation of natural phenomena (WON - Wonders of Nature);**
- 2. apply a body of knowledge within the biological systems and develop a concurrency of learning with other academic disciplines;**
- 3. demonstrate proficiency in the use of the scientific methodology as a way of generating knowledge;**
- 4. effectively use critical thinking skills to analyze, evaluate and synthesize information;**
- 5. appreciate the need for effective collaboration and communication during scientific activities;**
- 6. discuss the moral, ethical, social, economic and environmental implications of using science and technology;**
- 7. show an awareness of the possibilities and limitations associated with the use of science and technology**

YEAR 3 IP BIOLOGY COURSE OUTLINE

Theme I

Cells and The Chemistry of Life

1. Cellular Structure and Organisation
2. Movement of Substances
3. Biological Molecules

Theme II

The Human Body - Maintaining Life

4. Nutrition in Humans
5. Transport in Humans
6. Respiration in Humans
7. Excretion in Humans
8. Homeostasis, Coordination and Response in Humans

YEAR 4 IP BIOLOGY COURSE OUTLINE

Theme II

The Human Body - Maintaining Life

9. Infectious Diseases in Humans

Theme III

Living Together - Plants, Animals and Ecosystems

10. Nutrition and Transport in Flowering Plants
11. Organisms and their Environment

Theme IV

Continuity of Life

12. Molecular Genetics
13. Reproduction
14. Inheritance

ASSESSMENT MODES

Assessment for the Year 3 & 4 IP Biology Course will comprise coursework, assessment of practical skills and written examinations.

The table below summarises the student assessment modes for both years.

Year 3 IP

Internal Assessment Modes	Weighting
Term 2 & 3 Common Test & Coursework	30%
Term 4 Year-End Examination	70%

Year Y4 IP

Internal Assessment Modes	Weighting
Term 2 & 3 Common Test & Coursework	30%
Term 4 Year-End Examination	70%

ACCELERATED CLASS FOR SCIENCE (ACS)

The ACS is a differentiated 2-year programme offered by ACS (Independent) for Year 3 and 4 students who have great interest in the sciences and display special talents. This programme requires students to take Physics, Chemistry and Biology.

PREREQUISITES FOR IBDP BIOLOGY

The prerequisites for students to do IBDP Biology in Year 5 and 6 are

- **Standard Level (SL)** – students must obtain at least a pass in Year 4 IP Biology
- **Higher Level (HL)** – students must obtain at least a Grade 6 in Year 4 IP Biology

