

Subject Homepage – Biology

1. Our Expectation

Through systematic and continuous learning activities in the study field of biology, our students are expected to :

- acquire knowledge and understanding of basic biological principles, concepts, terms and facts;
- apply biological knowledge and concepts to familiar and unfamiliar situations;
- show an understanding of the application and uses of biological knowledge in daily life as well as to evaluate its impacts on and implications for living world;
- develop an understanding of current issues and development in biology,
- develop an interest in the study of biological science, and a commitment to a healthy life; and
- develop an appreciation of the wonders of living world and a respect for all living things.

2. Curriculum Framework : HKDSE Biology and Combined Science (Biology)

	Section	Topics
Compulsory part	1. Cell and Molecules of life	a. Molecules of life * b. Cellular organisation * c. Movement of substances across membrane * d. Cell cycle and division * e. Cellular energetics *
	2. Genetics and Evolution	a. Basic genetics * b. Molecular genetics * c. Biodiversity and evolution *
	3. Organisms and Environment	a. Essential life processes in plants * b. Essential life processes in animals * c. Reproduction, growth and development * d. Coordination and response * e. Homeostasis * f. Ecosystem *
	4. Health and Diseases	a. Personal health * b. Diseases * c. Body defence mechanisms

* Part of these topics is included in the biology part of Combined Science.

	Section	Topics
Elective part	1. Human physiology : Regulation and Control	a. Regulation of water content (osmoregulation) b. Regulation of body temperature c. Regulation of gas content in blood d. Hormonal control of reproductive cycle
	2. Applied Ecology	a. Human impact on the environment b. Pollution control c. Conservation d. Sustainable development
	3. Microorganisms and Humans	a. Microbiology b. Use of microorganisms c. Microbial genetics d. Harmful effects of microorganisms
	4. Biotechnology	a. Introduction to biotechnology b. Techniques in modern biotechnology c. Biotechnology in medicine d. Biotechnology in agriculture e. Bioethics

3. Language Policy

Medium of instruction : English

4. Learning Outcomes

(A) Knowledge and Understanding

Students will acquire **knowledge** and develop **understanding** of :

1. the nature and history of biology
2. biological terms, biological facts, biological concepts and principles;
3. biological practical skill (e.g. use of microscope) ;
4. the application and uses of biology in everyday life;
5. the implications of biology for society and the environment; and
6. current issues and development in biology.

(B) Scientific Process Skills

Students will acquire or develop the following skills so that they can study biological phenomena through the scientific process :

1. developing scientific thinking and problem-solving skills;
2. planning and performing investigations; formulating working hypothesis and devising tests for them, using controls where appropriate;
3. searching, collecting and organising information from various sources; communicating and presenting them in a clear and logical form; and evaluating and applying them to solve problems in familiar and unfamiliar situations;
4. analysing and interpreting data;
5. observing and describing objects and phenomena accurately;
6. interpreting drawings and photographs of biological structures;
7. using instruments and apparatus to the limits of accuracy appropriate to a given problem; and
8. performing common laboratory techniques, and handling chemicals, instruments, apparatus and biological materials carefully and safely.

(C) Values and Attitudes

Students will develop the following **values and attitudes** :

1. an interest and enjoyment in study living organisms and their interrelationships;
2. a responsible regard for both the living and non-living components of the environment;
3. ethical behaviour;
4. a critical and inquiring mind;
5. an objective attitude towards evidence;
6. a positive attitude in discussing biological issues;
7. an awareness that the scientific knowledge may be tentative and is subject to change if new evidences are found;
9. an awareness of the need for appropriate safety procedures;
10. an awareness of both the usefulness and limitations of hypothesis in making predictions and explaining biological phenomena; and
11. a desire of critical evaluation of the consequences of the applications of science and recognising their responsibilities to conserve, protect and maintain the quality of all environments for future generations.

5. Learning Strategy

Students should behave as active learners. Students should initiate, organise, make decision on and take responsibility for their own learning. They can follow the learning strategies below in order to become life-long learners.

1. develop pre-lesson habit
2. concentrate during lesson
3. underline key points and drop down notes during lesson
4. prepare well before attending tests and examinations
5. participate actively in relevant learning activities e.g. discussion, practical works, information searching, outdoor visits, etc.
6. form study groups with peers

6. Subject Characteristics

Biology is a branch of science to study living organisms. In HKDSE, the biology curriculum is divided into 2 parts : the compulsory and elective parts. The compulsory part covers a range of content for students to develop understanding of fundamental biological principles and concepts. The elective part caters for the diverse interests, abilities and needs of students.

A wide range of co-curricular activities can be held to motivate the interests of students to study biology. Followings are some examples of those activities :

<p>(A) Recycled Paper Workshop</p>	<p>(B) Leaf-Vein Bookmark Workshop</p>
	
<p>(C) Visit to Mai Po Marsh</p>	<p>(D) Visit to Organic Farm</p>
	



7. Teaching Staff

Form	Teacher(s)
F.3	Mr. C. M. Wong & Miss H. C. Chan
F.4 (4X, 4Y & 4Z)	Mr. W. P. Cheng & Miss T. L. Tai
F.5 (5X & 5Y)	Mr. C. M. Wong
F.6	Mr. W. P. Cheng
F.7	Mr. C. M. Wong

8. Useful links

- (A) [English-Chinese dictionary for biological terms](http://www.cmi.hku.hk/Ref/Glossary/Bio/e.htm)
<http://www.cmi.hku.hk/Ref/Glossary/Bio/e.htm>
- (B) [Biology Curriculum and Assessment Guide \(Secondary 4 – 6\)](http://www.edb.gov.hk/FileManager/EN/Content_5999/bio_final_e_070328.pdf)
http://www.edb.gov.hk/FileManager/EN/Content_5999/bio_final_e_070328.pdf
- (C) [Hong Kong Examinations and assessment Authority - HKDSE](http://www.hkeaa.edu.hk/en/hkdse)
<http://www.hkeaa.edu.hk/en/hkdse>
- (D) [NSS Mastering Biology \(Oxford\)](http://nssbio.oupchina.com.hk/)
<http://nssbio.oupchina.com.hk/>

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