Tsuen Wan Public Ho Chuen Yiu Memorial College

Biology Curriculum Guides (2025-2026)

Curriculum aims

The overarching aim of the Biology Curriculum is to provide biology-related learning experiences that enable students to develop scientific literacy, so that they can participate actively in our rapidly changing knowledge-based society, prepare for further studies or careers in the fields related to life science, and become lifelong learners in science and technology.

The broad aims of the Biology Curriculum are to enable students to:

- develop and maintain an interest in biology, a sense of wonder and curiosity about the living world, and a respect for all living things and the environment;
- construct and apply knowledge of biology, understand the nature of science in biology-related contexts, and appreciate the relationships between biological science and other disciplines;
- develop the ability to make scientific inquiries; think scientifically, critically and creatively; and solve biology-related problems individually and collaboratively;
- understand the language of science and communicate ideas and views on biology-related issues;
- be aware of the social, ethical, economic, environmental and technological implications of biology, and be able to make informed decisions and judgments on biology-related issues; and
- develop an attitude of responsible citizenship, and a commitment to promote personal and community health.

Subject Panel Head: Ms. Leung Hoi Yan Wendy

Form 3

Laboratory Safety

1. Food substances
2. Food test
3. Digestion and absorption
4. Diet and health
5. Infectious diseases
6. Non-infectious diseases
7. Biotechnology and medicine

Form 4

Laboratory Safety

1. Studying biology & Nature of Science
2. Cellular structure
3. Movement of substances
4. Enzymes and metabolism
5. Food and humans
6. Nutrition in human
7. Gas exchange in humans
8. Transport in humans
9. Nutrition and Gas exchange in plants
10. Transport in plants
11. Cell division
12. Reproduction in plants
13. Reproduction in humans
14. Growth and development
15. Detecting the environment

Form 5

Laboratory Safety

1. Detecting the environment
2. Coordination in humans
3. Movement in humans
4. Ecosystem (Field trip included)
5. Basic Genetics
6. Molecular genetics
7. Biotechnology
8. Biodiversity (Animal workshop included)
9. Evolution
10. Homeostasis
11. Non-infectious Diseases and Disease Prevention
12. Body Defence Mechanism
13. Photosynthesis
14. Respiration
15. Biotechnology 1
16. Biotechnology 2

Form 6

Laboratory Safety

1. Regulation of water content
2. (osmoregulation)
3. Regulation of body temperature
4. Regulation of gas content in blood
5. Hormonal control of reproductive cycle

HCY Biotechnology Laboratory

The biotechnology laboratory is equipped with advance biotechnology equipment including over 40 micropipettes, compound microscopes, a -80^{o}C refrigerator, a PCR machine, incubators, centrifuges, gel electrophoresis tanks, a biosafety cabinet and an autoclave.

HCY School-based Biotechnology curriculum 2025-2026

Form	Topic	Techniques	Activity
1	Chapter 4 DNA and heredity	DNA extraction	DNA extraction from banana, Observation of chromosomes
2	Chapter 9 Acids and Alkalis	Use of micropipette to transfer solution	Neutralization experiment
3	Chapter 12 Digestive enzymes	Use of micropipette to transfer solution	Effect of amylase on starch
	Chapter 12 Infectious disease	Cell culture	- Effect of cleansing agents on the growth of bacteria - Streak plating (Investigate the hygienic condition of objects)
	Chapter 12 Biotechnology	PCR, Gel electrophoresis	Visit the school biotechnology laboratory PCR, DNA fingerprinting demonstration
4	Chapter 4 Enzymes	Use of micropipette to transfer solution	- Effect of temperature on amylase activity - Effect of pH on protease activity
5	Chapter 25 Basic Genetics	Use of micropipette to transfer solution	ABO blood test
	Chapter 25 Basic Genetics	Use of centrifuge	DNA extraction on plant cells
	Chapter 27 Biotechnology	Gel electrophoresis	- Create gel for electrophoresis - Separate DNA in DNA samples and measure its size with DNA ladder
6	Elective 4 Biotechnology	Gel electrophoresis	Identify the genotype of individuals
	Elective 4 Biotechnology	PCR	Perform PCR
3-5	iGEM competition	Recombinant DNA technology	Theory and practice of recombinant DNA technology

* When necessary, micropipettes will be used in various experiments in senior form biology. Each student will be familiar with the use of micropipette in transferring small amount of solution.

Photos from biology lessons