

5. Science Education

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To develop our girls into scientifically literate individuals, the Departments of Junior Science, Biology, Chemistry and Physics in the Science Education Key Learning Area provided a wide range of learning experiences, both inside and outside classrooms, to equip our girls with the necessary knowledge, skills, values and attitudes.

Junior Science Department

In the academic year 2017-18, the Junior Science Department continued to promote e-Learning and self-directed learning. Over twenty eClass or Google virtual classrooms were set up to disseminate material, assign tasks and sustain learning and teaching beyond the classroom. iPads and other IT tools were used in many lessons to enhance students' participation in class activities and promote collaborative work among students.

In partnership with external organizations, including MIT Media Lab, the Institute of Electrical and Electronic Engineering - Women in Engineering and the Robot Institute of Hong Kong, various STEM workshops were held this year. Through hands-on experiences, demonstrations and sharing by professionals, students learnt more about the relationship between science, technology, engineering and mathematics beyond the curriculum and explored their career prospects in these domains.

To further unleash our girls' potential in STEM, students were encouraged to take part in a wide range of relevant competitions, such as the Infrastructure Building Competition for Secondary Schools and the Guangdong-Hong Kong-Macau STEM Triathlon. While Robotics continued to be incorporated in our school-based Science curriculum for S.2, new opportunities were opened up for more junior form girls to take part in Robotics workshops and competitions.

Teachers in the department were delighted to supervise students as they conducted scientific investigations on topics of their own interest in various competitions including the Hong Kong Student Science Project Competition and the Hong Kong Youth Science & Technology Innovation Competition.

Biology Department

Our department continued to explore various opportunities to extend learning experience beyond the classroom. Students participated in the InnoCarnival 2017 held at Hong Kong Science Park. They attended workshops on DNA fingerprinting and genetics. As enrichment to learning of the subject, our students also attended public lectures of different kinds. These include the Shaw Prize Lecture on Life Science and Medicine and the Explore the World of Medicine: Public Lecture Series 2017 organized by the Li Ka Shing Faculty of Medicine of the University of Hong Kong. Our students were also invited to take part in the Knowledge Exchange Programme at HKU: Early diagnosis of Middle East Respiratory Syndrome organized by the Department of Microbiology of the University of Hong Kong. They visited professional research laboratories of the Department where they had fruitful discussions with the research and teaching staff there.

Biodiversity and conservation are two important concerns of our subject. Arrangements were made for all S5 Biology students to participate in the field study course organized by the Ho Koon Nature Education cum Astronomical Centre in May to study the fresh water ecosystem at Chuen Lung. Moreover, our students continued to participate in the Horseshoe crab rearing programme organized by the Ocean Park Conservation Foundation this year and these Horseshoe crabs were released into the wild in July.

Our students continued to perform well in the subject. All students received 3 or above in the 2018 HKDSE and 58.4% of our cohort received 5* or above. Some of our students also participated in the Hong Kong Biology Literacy Award organized by the Hong Kong Association for Science and Mathematics Education and received encouraging results.

Chemistry Department

To better prepare students for the A-level Chemistry course in S5 should students opt to choose this curriculum, 14 school-based experiment worksheets were designed to enable S4 students to have a taste of the A-level syllabus.

60 students participated in the Chemists Online Self-study Award Scheme co-organized by the Education Bureau and the Hong Kong Virtual University.

Students learnt beyond the textbook and understood how chemical principles can be applied in everyday life through watching the videos prepared by lecturers from various tertiary institutions.

In November 2017, all students in the senior forms studying chemistry were invited to attend a video-conferencing lecture held at DGS Recital Hall on the use of cryo-electron microscopy organized by HKUST. The students learnt to appreciate the advancement in technology for the determination of the structure of biomolecules in solution which was honoured with the Nobel Prize in Chemistry in 2017.

Physics Department

The Physics Department aims at helping students understand the fundamental principles and concepts of Physics and developing an awareness of the relevance of Physics to their daily life. Technology are extensively used to enhance teaching and learning. e-classrooms are set up in iTunesU and Google Classroom platforms, while iPads can break the walls of classroom and facilitate self-directed learning. Contextual learning effectively anchors teaching and learning in the life context of students.

Two teachers and seven students from S3 to S5 attended the “Nobel Laureate Public Charity Seminar – To Infinity and Beyond” organized by the Social Enterprise Research Academy on 5 May 2018. It was a valuable experience for both teachers and students to listen to the lecture given by Nobel laureate Prof. Kajita Takaaki on his work on the neutrino. They were highly inspired by his persistence in research work and his great contribution to the understanding of the universe.

Going into the third year of implementation of A-level curriculum in S5 in 2018-2019, the School will introduce A-level Physics to the class. Seven students have chosen the subject and they will sit the Edexcel IAL examination in 2020. Subject teachers had attended various training workshops and are well prepared for teaching this new curriculum.

Our students continued to perform excellently in HKDSE Physics examination. The result this year is the best ever for HKDSE examinations.

External competitions and events 2017-2018

Under the Science teachers’ coaching and supervision, our students participated in various local and overseas activities and attained encouraging results in competitions. Some of the activities are shown below:

1. Ng Sze Mai of 4W represented Hong Kong in the 14th International Junior Science Olympiad held in the Netherlands in December 2018. She captured a Silver medal in the event. She also attained 3rd Honors in the Hong Kong Physics Olympiad organized by the Hong Kong Academy for Gifted Education.
2. Chan Siu Yee Tania of 4Z was one of the five teams selected for the 1+1 Science Tip-top Talent Scheme 2017/18 organized by the Hong Kong Federation of Youth Groups. She received a research funding of \$12,000. Over the course of the academic year, she conducted her proposed research on wolfberries in the laboratories at the School of Life Sciences, CUHK under the mentorship of the professors there.

3. In January 2018, Yeung Man Kei Helen and Sung Wing Kiu Gabriella participated in the 10th International Science Youth Forum 2018 organized by the Hwa Chong Institution, Singapore. This annual event provides a platform for academic and cultural exchange among scientifically-gifted students from different countries. They also had the privilege to attend master classes conducted by some Nobel laureates.
4. In March 2018, a team comprising ten Electronics and Robotics Team members captured the Inspire Award, the grand prize in the 2017/18 FIRST Tech Challenge Hong Kong Tournament. The team was honoured to represent Hong Kong at the FTC World Championship held in April 2018 in Houston, Texas.
5. A team of ten Electronics and Robotics Team members participated in the Hong Kong FIRST LEGO League Robotics Tournaments. The team captured the Champion's Award: 3rd Place in the Secondary Division.
6. In the International Junior Science Olympiad 2018 – Hong Kong Screening, Liu Tin Nam and Yeung Shuet Ching of 3X captured the Second Class Honour, while Li Wing Tung and Wong Hiu Yu of 3U were awarded the Third Class Honour.
7. Chan Hayley and Tsui Vivienne of 2U attained the 1st Runner-up in the Junior Secondary Division in the "Digi-Science" Video Production Competition for Hong Kong Secondary Schools 2017-2018.
8. Five members of the Electronics and Robotics Team participated in the Underwater Robot Competition 2018 organized by the Hong Kong University of Science and Technology. The team attained the Bronze Achievement Level and Third Place in the Preliminary Round.
9. A team comprising three members of the Electronics and Robotics Team captured the First Merit Award in the Secondary Section in the Robotics Intelligence DIY 2018.
10. Three teams participated in the Hong Kong Youth Science & Technology Innovation Competition 2017-2018 organized by the Hong Kong New Generation Cultural Association. The team comprising Yeung Man Kei Helen and Sung Wing Kiu Gabriella captured the Merit Award in the Mathematics, Physics and Engineering Section of the Senior Secondary Division, while the team comprising Cheung Ho Ning and Ching Michelle captured the Merit Award in the Biology and Health Section of the Junior Secondary Division.
11. Two S.4 girls, Mak Chiu Ki Astor and Chong Kiu Fung, participated in the "Innovating Today, Imagining Tomorrow" Mentorship Program co-organized by the Hong Kong University of Science and Technology and the Hong Kong Federation of Youth Groups. They were exposed to various interdisciplinary activities, under the mentorship of some professors, to learn about the latest developments in various areas of science and technology.
12. Nineteen girls achieved Distinction or above in one or more Science subjects in the Secondary School Mathematics and Science Competition 2018 organized by the Hong Kong Polytechnic University. Gao Yawen and Yeo Victoria Anna attained the Medal ranking, the top achievement level, in Biology and Chemistry Sections respectively.
13. Fifteen S.5 Biology students were nominated for the Hong Kong Biology Literacy Award (2017/2018) and attained encouraging results. Gao Yawen, Lai Wing Tsz, Siu Andrea and So Zi Qing Valerie captured the First Class Honours.
14. Two S.4 girls, Moy Sze Wing Clara and Ng Ka Hei, participated in the Young Astronaut Training Camp 2018 organized by the Hong Kong Space Museum. They had the chance to learn about the latest development in aerospace in China through an eight-day space training camp in Beijing.