

## **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 have 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**

The Junior Science Department has continued to explore ways to enhance our students' scientific literacy, cultivate their interest in science and encourage them to pursue the latest science knowledge through self-directed learning.

This year, we participated in the Junior Secondary Science Online Self-learning Scheme, a pilot scheme organised by the Education Bureau, the Hong Kong Virtual University and the Hong Kong Metropolitan University. Students were given the opportunity to learn various science topics, such as 'Matter and Atomic Structure', 'Motion', 'Biotechnology' and 'Fair Test', through watching videos and online seminars at their own pace and evaluating their understanding by completing quizzes on the online platform. With the enthusiastic participation and outstanding performance of our S1-S3 girls, 177, 105 and 65 of them attained the Gold, Silver and Bronze Awards respectively in the scheme.

After resumption of face-to-face school in the third term, robotics workshops were organised after school and during the Mini-Summer Term to enrich our students' STEM learning through hands-on activities. Some further challenged themselves to take part in various robotics competitions in the summer vacation.

### **Biology Department**

Teachers and students have adjusted well to the new normal of learning and teaching amid the COVID-19 pandemic. Our girls continued to perform well in the HKDSE and GCE IAL Biology examinations. During the special vacation in March and April, all students in our S4 and S5 DSE Biology classes completed a group project on 'Nature of Science'. They made good use of their time during the vacation to deepen their understanding in this topic of our curriculum emphases and foster their self-directed learning, collaboration and presentation skills.

The field trip for S5 unfortunately had to be cancelled again this year as a precautionary measure to prevent the spread of COVID. To make up for the loss of the valuable learning experience for consolidating the concepts and skills in Ecology, 'Biology Virtual Field Study - Study of Freshwater Stream Ecosystem' was carried out on the online platform provided by Ho Koon Nature Education Cum Astronomical Centre.

Arrangements were also made for students to take part in other external programmes, such as the Native Freshwater Turtles Conservation Education Programme and the International Pathology Day Virtual Workshop 2021, to enrich their Biology learning beyond the curriculum.

## **Chemistry Department**

This year, 60 students from S5 classes participated in the Chemists Online Self-study Award Scheme co-organised by the Education Bureau and the Hong Kong Virtual University. Through participating in this programme, students had a chance to learn outside the classroom and beyond textbook contents.

The element of national security was introduced in teaching various topics in the DSE stream, emphasizing the importance of protecting natural resources and utilizing them in a responsible manner. We hope that students not only learn the concept of national security, but also broaden their horizons and understand more about world-wide issues and international relations.

The department has modified its policy on continuous assessment in order to give timely and specific feedback to students. The result is encouraging. We would continue to explore different measures to further improve the effectiveness in learning and teaching.

## **Physics Department**

The 2021-22 academic year continued to provide challenges towards teaching and learning in the classroom. Learning opportunities were offered to students to undertake simple engineering tasks and completing experiments at home to not only support and enhance classroom learning but to give students opportunities to have hands-on experience imagining, planning, ideating, creating, testing and improving their designs. Other learning experiences beyond the classroom for students included attending lectures at universities ranging from the astronomically large to the quantum small.

Our girls continued to perform well in the public examinations with over 40% of them obtaining 5\* or above in the 2022 HKDSE and over 80% achieving A\* in the International A Level exams.

The department is excited to continue finding and exploring new and exciting learning opportunities for our students to further enrich their education.

## **Science programmes and competitions 2021-2022**

Besides the activities organised by the respective Science subject departments, the Science Team arranged for students to take part in a wide array of local and international programmes. Under the Science teachers' coaching and supervision, our students attained encouraging results in competitions. Some of the activities are shown below:

1. In November 2021, close to 150 girls attended the 'Masterminds, Masterclasses', a series of seminars in Life Science and Medicine, Astronomy and Mathematical Sciences. On 26 July 2022, 50 girls physically or virtually attended the 'Wonder Women in Science – Inspiring and Empowering the Next Generation' Seminar and Round-table Dialogue. These events organised by the Hong Kong Laureate Forum provided our girls with the privilege to learn about cutting-edge scientific research from some world-renowned and award-winning scientists.
2. Chan Sum Yuet Tiffany and Leung Ching Ching in S5 took part in the 1+1 Science Tip-Top Talent Scheme 2021/22 organised by the Hong Kong Federation of Youth Groups. Each of them received a research funding of \$12,000 to conduct research under the mentorship of university professors over the course of the academic year.
3. In January 2022, Chan Sum Yuet Tiffany and Chung Nicole Mong Joo participated in the International Science Youth Forum Digital 2022 organised by the Hwa Chong Institution, Singapore. This virtual exchange programme provided a precious opportunity for academic and

cultural exchange among scientifically-gifted students from different countries amid the global pandemic.

4. Six S3 girls took part in the International Junior Science Olympiad 2022 – Hong Kong Screening. Choi Pui Yan Valerie and Kum Ho Yee captured First Class Honours, So Chun Kiu and Jiang Yolanda Pak Yin captured Second Class Honours, while Lam Elizabeth and Wong Tze Ching Andrea captured Third Class Honours. Our school was awarded the Third Runner-up.
5. In the Hong Kong Physics Olympiad 2021, Kwok Sum Yuet of 3U was given the Second Class Honours.
6. In the International Biology Olympiad – Hong Kong Contest 2021, Ng Hey of 4U attained the Silver Award while Cheung Chun Yan Alicia of 6W attained the Bronze Award.
7. In the Hong Kong Biology Literacy Award (2021/2022), Cheung Mo Kiu Monique, Hui Ching Yi and Miao Hoi Ching captured the Second Class Honours, Chung Nicole Mong Joo and Wong Ka Yu the Third Class Honours.
8. Over 20 girls took part in the 2022 Australia Big Science Competition in May 2022 and attained very encouraging results. Chien Yanoch, Ching Helen, Kee Cheuk Yin Chloe, Lee Crystal, Wong Wing Yin Audrey, Lai Yat Yu Audrey and Ng Hey received High Distinction.
9. In the Inter-School Online Science Competition 2021 organised by the Faculty of Science of the University of Hong Kong, the team comprising Chow Tsz Yau, Lam Wai Sum, Leung Chi Wai Natalie and Wong Ka Yu was crowned the championship.
10. In the Hong Kong Secondary School Health Exhibition Presentation Competition 2021 organised by the Medical Society of the Chinese University of Hong Kong, the team comprising Chiu Wing Lam Agnes, Hui Hoi Lam, Ko Hon Yiu, Siu Audrey Abigail, Yau Man Ching and Chan Sum Yuet Tiffany was the First Runner-up.
11. In the 15<sup>th</sup> Hong Kong Budding Scientists Award organised by the Gifted Education Section of Education Bureau, the team comprising Choi Pui Yan Valerie, Kum Ho Yee, Lee Crystal and So Chun Kiu was awarded the Honourable Mention and the Reporter Awards.
12. Lee Crystal and Ng Si Ting of 3U were awarded the First Runner-up in the ‘Science World: Exploring Space to Benefit Mankind’ Education Programme - Science Experiment Competition organised by the Global Engagement Office of the Hong Kong Polytechnic University.
13. In the Clean Air Challenge 2021-22 organised by the Institute for the Environment of the Hong Kong University of Science and Technology, the team comprising Ho Ying Tung Crystal, Lam Yi Tak and Yuen On Ying Michelle was the recipient of the Silver Award and the Best Quality Award in the Social & Art Category.
14. Lee Crystal attained First Prize in the Scientific Wallchart Division in the Hong Kong Student Science Project Competition 2022.
15. In the Hong Kong Brain Bee Competition 2022, Ip Wing Chun and Wong Tsz Nok achieved Good Performance while Hung Tung Fei achieved Creditable Performance.
16. The Electronics and Robotics Team was given the Inspire Award, the grand prize in the FIRST Tech Challenge Hong Kong Tournament 2021/22.
17. Lee Crystal attained Gold Award in the BottleSumo Senior Classic section in the ROBOFEST Hong Kong 2022.