

### 3. Mathematics Education

Miss B. Lee

Our mission is to nurture young minds to become effective and creative problem solvers in applying mathematical knowledge and skills in a dynamic world of modern technology. The Department of Mathematics accomplishes its education mission by providing mathematics knowledge for everyday life and develop a solid platform for higher-order mathematics learning.

The pandemic situation presented the Department with unprecedented challenges in various ways; however, efforts were made to navigate and weather the storm brought by the pandemic. The spirit of striving for excellence enabled us to respond swiftly in an uncertain and unpredictable environment. To ensure lessons were delivered effectively, teachers often needed to review and modify their teaching plans, teaching styles and assessment methods. Different pedagogical approaches, namely synchronous (teachers and students meet online using a video conferencing software during the designated class hours), asynchronous (teachers record lecture videos and upload them to a platform such as YouTube, so that students can access them in their most convenient time) and blended learning strategy (students learn via electronic and online media as well as traditional face-to-face teaching) were employed. To promote eLearning pedagogy and strategies, the School enrolled in the “Esperanza X ISTE Blended Learning Programme” organised by the Esperanza and the ISTE from the United States. One of our Mathematics teachers joined a 6-month professional training programme on advanced blended learning strategies and her experience was shared with other teachers.

The students’ performance in the HKDSE examination was consistently outstanding. In the compulsory part, 12% of students achieved 5\*\* and 65% attained Level 5 or above. In the Calculus and Statistics Module, 72% of student obtained Level 5 or higher; and in the Algebra and Calculus Module, 76% attained Level 5 or above. The results in International Advanced Level (IAL) examination were also remarkable. 64% of students achieved A\* and 90% obtained B or above. Through an effective blend of rigorous curriculum and quality teaching delivered by our highly experienced and professionally qualified teachers, the 2022 cohort of students have transcended each barrier and leapt over every hurdle to reach yet another significant and impressive milestone in their educational journey. With their acquired knowledge and skills, we are confident that they will be well prepared to excel in their chosen niche of study in the years ahead.

Amongst the enrichment activities worthy of special mention is mathematical modelling. Students are required to apply their skills to solve real-world problems, which are based on novel and complex situations. They must think out of the box and experiment with various methods and variables in order to obtain the most logical results. At the 8th International Mathematical Modeling Challenge (International Contest of Greater China), the team comprising Lee Crystal (3U), Ng Si Ting (3U), Ip Wing Chun (3W) and Wong Wing Yin Audrey (3W) was awarded the Meritorious Award. Another team comprising Lam Wai Sum (5W), So Wing Tung Abby (5W), Wong Ka Yu (5W) and Yu Sui Ki Rita (5W) received the Outstanding Award and was one of the two teams representing Hong Kong in the 2022 International Mathematical Modeling Challenge. The team was one of the 58 teams from 31 countries/regions and won the Honorable Mention Award. A second team comprising Chan Tsz Hei (4U), Ho Nga Chi Megan (4U) and Fang Samantha Guo Ling (4U) participated in another international mathematical modelling contest, the High School Mathematical Contest in Modeling (HiMCM) 2021, and received the Finalist Award, ranking amongst the top 6% worldwide.

To further promote mathematical modelling, the teaching of mathematical modelling and applications were introduced in the existing S.4 curriculum. This provides opportunities for students to experience how real world problems can be solved using mathematical modelling and to develop their interest in it. It also allows more students to experience the power of mathematics and the aesthetic side of mathematics as something beautiful and enjoyable.

Major achievements in various competitions are listed below:

1. The 8th Annual International Mathematical Modeling Challenge (IMMC): The Regional Contest of Greater China
  - Outstanding Award:
    - team comprising Lam Wai Sum, So Wing Tung Abby, Wong Ka Yu, Yu Sui Ki Rita
  - Meritorious Award:
    - team comprising Lee Crystal, Ng Si Ting, Ip Wing Chun, Wong Wing Yin Audrey
2. The 8th International Mathematical Modeling Challenge (IMMC): The International Contest of Greater China
  - Outstanding Award:
    - team comprising Lam Wai Sum, So Wing Tung Abby, Wong Ka Yu, Yu Sui Ki Rita
  - Meritorious Award:
    - team comprising Lee Crystal, Ng Si Ting, Ip Wing Chun, Wong Wing Yin Audrey
3. The 2022 International Mathematical Modeling Challenge
  - Honorable Mention:
    - team comprising Lam Wai Sum, So Wing Tung Abby, Wong Ka Yu, Yu Sui Ki Rita
4. The 24th High School Mathematical Contest in Modeling (HiMCM 2021)
  - Finalist Award (top 6% worldwide):
    - team comprising Chan Tsz Hei, Ho Nga Chi Megan, Fang Samantha Guo Ling
  - “Successful Participant” Certificate of Achievement:
    - team comprising Li Michelle Takako, Luk Yan Yi Cindy, Sum Yu Tung, and Zhang Manying
5. Mathematical Modelling Competition for Secondary Students (MMCSS) 2022
  - Junior Secondary Outstanding Award:
    - team comprising Ching Helen, Li Ruyi, Lee Crystal, Jiang Yolanda Pak Yin
  - Senior Secondary Meritorious Award:
    - team comprising Chan Tsz Hei, Ho Nga Chi Megan, Chow Tsz Yau, Wu Bailing
6. 2021/22 Statistical Project Competition for Secondary School Students
  - Junior Section First Prize and Prize for the Best Thematic Project:
    - team comprising Yiu Tung Toby, Yuen Yee Ting Hayley
  - Senior Section Third Prize:
    - team comprising Chan Shu Yiu Zoe, Cheng Wing Lam Regina, Cheung Mo Kiu Monique, Ho Ying Tung Crystal, Hui Hoi Lam
  - Senior Section Distinguished Prize and Prize for the Best Thematic Project:
    - team comprising Chow Tsz Yau, Chan Hei, So Hoi Ting, Tong Hei Tung, Wu Bailing, Zhou Jiatong

7. Mathematics Project Competition for Secondary Schools 2021 – 2022  
 First runner-up and Best Presentation Award:  
 team comprising Li Sze Wing Jennifer, Au Cheuk Yi, Li Tsz Yau,  
 Wong Hin Lam, Chan Hoi Chi Galie
- Outstanding Performance Prize:  
 team comprising Chan Sze Wing Christine, Ip Wing Chun,  
 Jiang Yolanda Pak Yin, Wong Wing Yin Audrey,  
 Wong Yu Kiu Yuuki
- Outstanding Performance Prize and Mathematical Modelling Award:  
 team comprising Au Wing Hei Jazlyn, Mai Polly, Wong Hoi Ching,  
 Chau Yu Yiu Zabrina, Ho Tsz Yan Antonia
8. Mathematics Book Report Competition for Secondary Schools (2021/22)  
 Second Class Prize and Chinese Cultural Award: Li Ruyi
9. The 12th Hong Kong Mathematics Creative Problem Solving Competition for Secondary Schools  
 Bronze Award:  
 team comprising Li Ruyi, Ching Helen, Au Wing Hei Jazlyn,  
 Mai Polly
10. The Thirty-ninth Hong Kong Mathematics Olympiad (HKMO) (2021/22)  
 Paper 1:  
 Second-class Honour Certificate: So Wing Tung Abby, Wu Bailing  
 Third-class Honour Certificate : Chow Tsz Yau, Wong Ka Yu
- Paper 2:  
 Second-class Honour Certificate: Chow Tsz Yau  
 Third-class Honour Certificate : Leung Tiffany Sabrina, Wong Ka Yu
11. International Mathematical Olympiad Preliminary Selection Contest – Hong Kong 2022  
 Honourable Mention award: Leung Tiffany Sabrina, Wu Bailing
12. The Centennial Schools Mathematics Competition  
 Bronze Award: Ip Tsz Oi
13. Canadian Mathematics Contests  
 Top Scorers:  
 Gauss Contest: Au Yat Yi, Yeung Man Yan Grace  
 Pascal Contest: Li Sze Wing Jennifer  
 Cayley Contest: Chow Tsz Yau
14. Hong Kong Mathematics Kangaroo Contest  
 Grade 7 Second Prize: Wong Hoi Ching  
 Grade 8 Second Prize: Ching Helen, Luk Cheuk Yiu Sylvia  
 Third Prize: Chan Winsome, Ng Yu Tung Cheryl  
 Grade 9 First Prize: Li Ruyi  
 Third Prize: Liu Zuri Jade  
 Grade 10 First Prize: Chow Tsz Yau  
 Third Prize: Chan Chun Yi  
 Grade 11 Third Prize: Chan Shiu Lam Chelsea

15. True Light Girls' Invitational Mathematics Contest 2021
- Group Championship:  
team comprising Chow Tsz Yau, Leung Tiffany Sabrina, Wu Bailing,  
Ip Wing Chun
- Individual Championship: Chow Tsz Yau
16. 34th Inter-School Mathematics Contest (ISMC 2022)
- Gold Award:  
team comprising Ching Helen, Li Ruyi, Yeung Man Yan Grace,  
Liu Zuri Jade
- Silver Award in Junior Secondary Category:  
Wong Hoi Ching, Leung Hoi Shun Bethanie,  
Ching Helen, Li Ruyi, Yeung Man Yan Grace
- Silver Award in Senior Secondary Category:  
Li Sze Wing Jennifer, Wong Tsz Ching Andrea
17. Asia International Mathematical Olympiad Open Contest – Semi-Finals 2022
- Champion: Li Ruyi
- Gold Award: Au Wing Hei Jazlyn, Chien Yanoch, Wong Hoi Ching,  
Leung Tiffany Sabrina, Li Michelle Takako,  
Luk Yan Yi Cindy, Wu Bailing
- Silver Award: Ho Tsz Yan Antonia, Lam Ho Ke
- Bronze Award: Wong Hau In, Leung Hoi Shun, Sze Yuet Hei Gisela
18. 「華夏盃」全國數學奧林匹克邀請賽 2022 (華南賽區) - 晉級賽
- 特等獎: Au Wing Hei Jazlyn, Wong Hoi Ching, Li Ruyi,  
Jiang Yolanda Pak Yin
- 一等獎: Chien Yanoch, Li Sze Wing Jennifer
- 二等獎: Chau Yu Yiu Zabrina, Leung Hoi Shun,  
Au Oi Ki Angela, Lam Ho Ke
- 三等獎: Ho Tsz Yan Antonia, So Hei Ching,  
Sze Yuet Hei Gisela, Li Yat Nok

To conclude this report, I would like to express my heartfelt thanks to all the teachers in the Department for their dedication, expertise and unwavering commitment. Their contribution has been pivotal in making this a vibrant, vigorous, flourishing and an inspiring year. I also wish to express my gratitude to our Headmistress, Mrs. S Lau, for her steadfast support and guidance throughout the year.