



"STEM FOR ALL" : Development and forward-looking

Our school has implemented STEM education since 2015. Our strategies include facilitating cross-curricular learning and incorporating STEM elements into the school curriculum, which help foster the school-based three-tiers. They are 'Learning STEM inside the classroom', 'Exploring STEM outside the classroom' and 'Enhancement & remedial programme'. The School has motivated the development of STEM education through different activities or competition during past years.

In 2015, our school set an Eco-friendly and Intelligent Technology Park for students. They could utilize different technologies to produce products such as electronic traffic signal system and small-scale hydroelectric generator. Through hands-on experience, students could learn to apply their knowledge effectively, which helped motivate them to have self-directed learning.

In 2016, our school chose coding as the topic for the LEGO building activity. This activity aimed to encourage students to make robots with computer-aided creativity and arouse their interest in STEM education.

In 2017, our school participated in the STEAM project organized by Project WeCan. Our students won 'The Best Presentation Award' for producing 'Water Level detector for Hotel'.

In 2018, our school joined the STEM School-based Curriculum Development Support Programme operated by the Education Bureau. We explored the methods for incorporating STEM education into the curriculum and starting cross-curricular cooperation. We also implemented a STEM FOR ALL Teacher Development Programme for our teachers and shared our learning products with the representative of the Learning Community on STEM Education.

In 2019, our school optimized the current School-based Support Programme and focused on evaluation and recommendations. The new STEM scheme included different activities such as 'Moon Lamp' and 'From World Expo to Step Pyramid' for S1 students and 'Small Night Lamp' for S2 students.

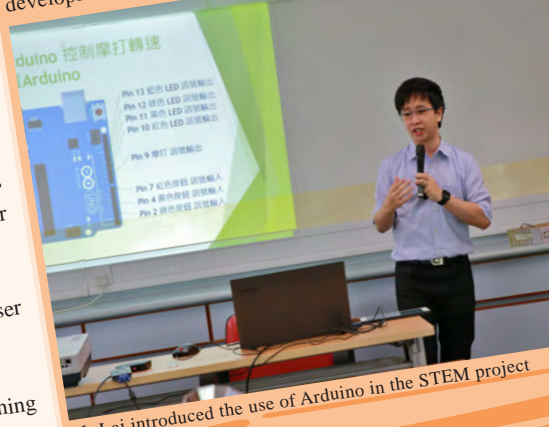
In 2020, our school offered online STEM education workshops like 'Balancing Birds' and 'Laser Gun' to students.

In the coming academic year, our school will take new steps to build a more appropriate learning environment for students to learn STEM. In view of hardware provision, the School will establish a STEM Lab in the coming year to allow students to carry out STEM activities a new advanced area. In addition, STEM lessons will be officially listed as the School's regular curriculum in order to offer students more chances in experiencing cross curricula mode of studies in STEM education.

The School is proactively nurturing students in acquiring the learning skills that is required in the 21st century, which enables them in utilizing their potential.



Interview of teachers and students by RTHK about the development of STEM



Mr Lai introduced the use of Arduino in the STEM project

To promote STEM education in our school and enhance students' experience in it, we encourage students to join different STEM competitions. Through competitions and preparation work, we believed students could broaden their views, widen their horizons and acquire different practical experiences.

This year, the School encouraged students to join the METOMICS STEM Competition 2021 conducted by Hong Kong Education Development Association. This competition aimed to arouse their interest in STEM programming, operation and applications, equip them with solid knowledge, and facilitate their acquisition of technological knowledge. As a result, it would help cultivate a STEAM learning community and fostered an interactive learning environment for students.

The competition required students to complete three contests. The first one was the Smart Car Coding Challenge, participants had to design their smart cars and command them to win the football match. Then it was the Drone Contest, students assembled their drones, flew the drone to overcome the obstacles placed on the track and landed it on the designated position. The last one was the STEM Trebuchet Competition. Participants had to use METOMICS to design and construct a trebuchet. Then, they launched METOMICS to the targeted destination using their trebuchets. The team accumulating the highest points from all events would win an overall championship trophy.

After intense contests with other competitors, our students achieved the 2nd runner-up in the STEM Trebuchet Competition and finally got the **Overall Championship** by having an outstanding performance. Congratulations!



Students were awarded the Overall Champion in METOMICS Greater China STEM Competition 2021 (Hong Kong Region)



Students are trying their trebuchet designed with STEM concept

Students' Reflections



We had to get our hands dirty in the whole process of this competition. Since it was our first time to join this type of competition, we did not master many techniques. Yet, we still completed the entire contest. Not only did this competition boost our team spirit, but it also enhanced our mechanical knowledge.

Chan Ting Lok Alexander

I was thankful for the support of the School and the ICT Team throughout the competition. Despite all difficulties, we won this competition with great teamwork and leadership.

Lau Roderick Darius

During the competition, we encountered some technical issues. We were not dispirited and decided to roll with these challenges. Finally, we overcame the difficulties and got a satisfactory result. It is an unforgettable experience.

Hung Lai Ki

I think the most unforgettable moment is the preparation stage. Buying appropriate materials was a challenge for us. Initially, we could not find the required materials and thought we might have to give up. After searching through lots of shops, we finally managed to buy suitable motors and wheels for the competition.

Hong Sai Chit

I think it is worth participating in this activity. I have learnt the importance of making a concerted effort to achieve a goal. For example, the STEM Trebuchet Competition required two teammates to work together and decide how to launch the METOMICS to hit the targets. The satisfactory result we got revealed that teamwork is very crucial. I hope I have the chance to join the competition with my schoolmates again next year.

Ng Ngo Him