



# STEAM

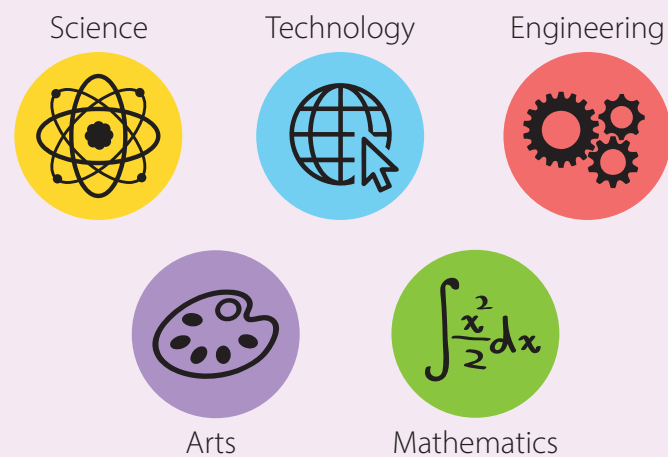
## Science @ Salesian 9

STEAM activities showcase  
Academic year 2022-23

## Intro to STEAM@Salesian

### Welcome!

Welcome to Salesian English School! Welcome to the world of science and mathematics! In this issue, we will show you how we inspire and equip our students in the world of STEAM (Science, Technology, Engineering, Arts and Mathematics)! Let us share with you the happy moments of learning science in our school in the previous year.



### Facilities

STEM activities are usually held in laboratories around our campus. From experiments to research to inventions, students can perform their investigative works and join workshops with the aid of our facilities in these labs.



Physics Lab (Rm 613)

Chemistry Lab (Rm 614)



Biology Lab (Rm 612)

Integrated Science Lab (Rm 508)



Computer Lab (Rm 414)

Mobile Learning Lab (Rm 515)

## Exhibitions

### 56th Joint School Science Exhibition

As one of the oldest and most prestigious local STEM events in Hong Kong, we have been participating in JSSE for many years. Each year, students need to work as a team to research on a daily life issue, which by means of an innovative invention using their talents from all STEM aspects, to come up with creative solutions to address the issue. The product invented will then participate in the JSSE exhibition being held during summer holiday.



With reference to the theme "Rhythm", our students invented "Re:RATrix", a reusable rapid antigen testing device with storage and personalised skins feature. We aimed at reducing the wastage of single-use plastic while allowing users to add a personal touch on the design. Our team with 29 students showcased the final product to visitors in the exhibition held in late August and won "The most popular booth" award.



### Projects of previous years

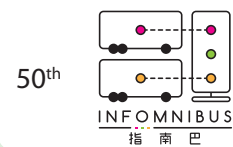
The following showcased some prominent projects that our students had developed in the last few years. Some ideas are already adopted by companies and are at service now!



**App for managing calorie intake**  
(Most popular booth & best demonstrator)



**Intelligent railway system**  
(1<sup>st</sup> place in proposal competition)  
(Overall: 1st Runner up)  
(Most popular booth & best demonstrator)



**Intelligent bus system**  
(Overall: 1st Runner up)  
(Most popular booth)

## Events

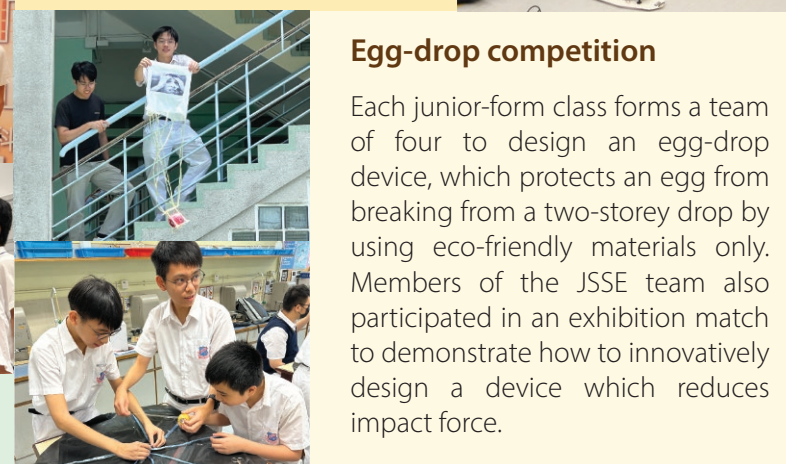
### Junior Form Science Exhibition

To let students to have a taste of the JSSE experience, we adopted part of the competition into our junior form IS curriculum. Under the premise of the theme "Journey", S1 and S2 students are required to reflect on the usage of science in bringing convenience and promoting sustainable development in a journey.



### S3 STEM Fun Day

We arranged a micro:bit Model Hovercraft Competition for all S3 students during the post-exam period. Through computer programming, students tried to operate a hovercraft. In an attempt to win the competition, students collaborated with each other and applied their knowledge of hovercraft construction and programming to operate a hovercraft successfully.

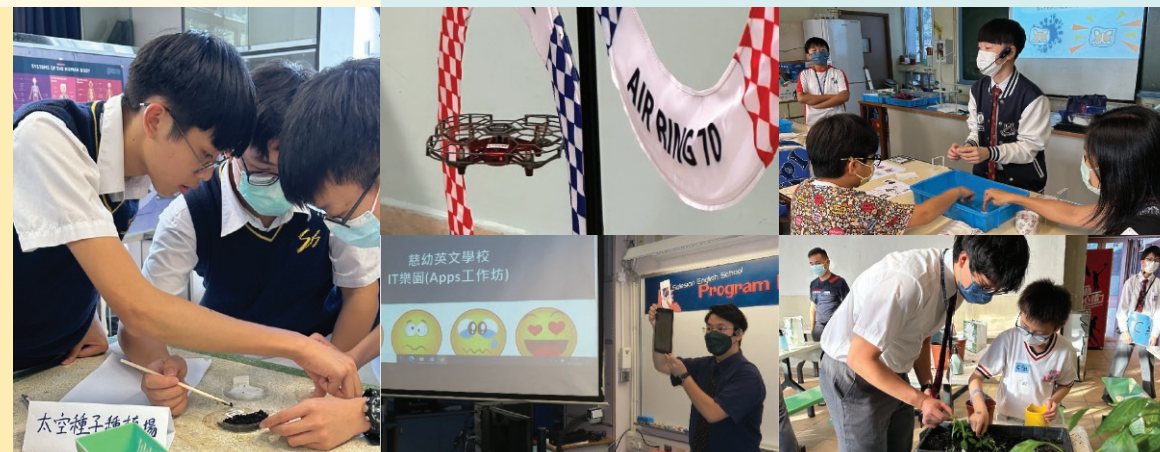


### Egg-drop competition

Each junior-form class forms a team of four to design an egg-drop device, which protects an egg from breaking from a two-storey drop by using eco-friendly materials only. Members of the JSSE team also participated in an exhibition match to demonstrate how to innovatively design a device which reduces impact force.

### Space seeds cultivation programme

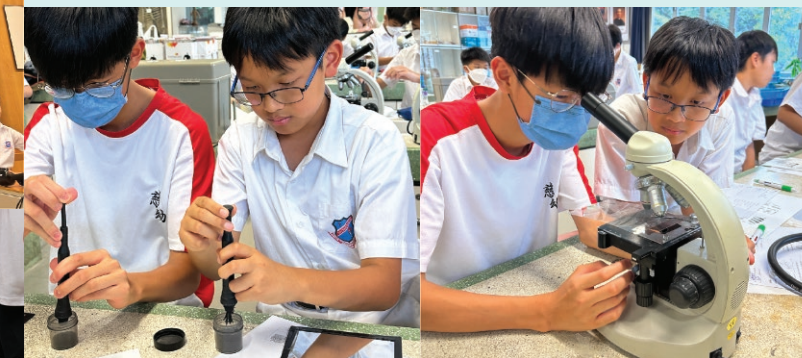
Co-organised with the gifted education team, the programme offers students to grow seeds of different plants delivered from China's space station. Students recorded the growth of seeds every day after germination for a month and tabulated the results.



## Workshops

### Forensic Science Workshop

"Introduction to forensic science workshop" are co-organized by the Gifted Education Team, STEM Team, the Integrated Science Panel and HKFYG Creative Education Unit. The workshop provides students with ample opportunities to participate in different forensic activities, including identification of fabrics and hairs, collection of fingerprints and shoeprints and etc. Students can understand modern forensic techniques and drill on their logic thinking, observation skills and analytical skills.



### Lantern - making Workshop

Jointly organised by the Reading promotion team and Art club, we invited Dr. Anna Kwong from HKUST to guide us through a workshop on how to make electronic paper lantern by taking inspiration from western architecture masterpieces.



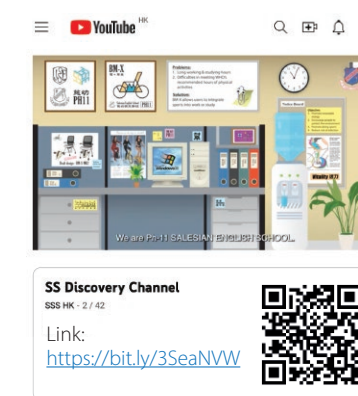
### Experiential Learning Day

In order to promote STEAM learning, we organised the Experiential Learning Day on November 2022. We welcomed primary school students to join our STEAM workshops, such as electrostatic stickers DIY, coding for mini game, gardening and experiencing the excitement of controlling robots and drones. Our students became instructors to the juniors. An enjoyable day they had!

## More discoveries ahead...

### Minecraft campus tour

Wanna have a quick look at our campus? Our alumni had spent almost five years to create a realistic virtual campus using **Minecraft** with beautiful rendering modification. Such dedication!  
(Link: <https://youtu.be/dbxcFauN4v4>)



### SS Discovery channel

To further promote **self-directed learning**, our teachers regularly make short clips on Youtube to introduce interesting and cool science concepts. Please have a look!

Wanna know more? Just visit our **school's website** for the latest news in our school's STEAM education development.



### VR Campus Tour

You can tour around our **virtual campus** too!  
Link: <http://vrssshk.edu.hk/>

Acknowledgements:  
STEAM Team,  
Science, Mathematics & Technology Education KLA,  
Gifted Education Team, Robotics Club and Robotics Team,  
Programming Design Club, Academic Affairs Committee,  
JSSE Sub-committee, Multimedia Production Team  
Salesian English School, 2023

### SALESIAN ENGLISH SCHOOL

16 Chai Wan Road, Hong Kong Tel: 2560 2134 / 2884 3581  
Web: <http://www.ssshk.edu.hk> Email: [admin@ssshk.edu.hk](mailto:admin@ssshk.edu.hk)



Science

Integrated Science

Wetland park guided tour

Throughout the school year, we trained twenty S3 students to be outstanding leaders, which give a guided tour of Hong Kong Wetland park to S1 students during the S1 Life-wide learning Activity Day. Students have chances to appreciate the behaviour of migratory birds and wetland flora and fauna.



Biology

Sandflat field study tour

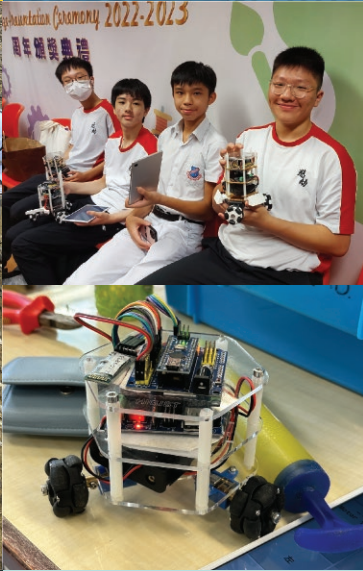
This field study allowed students to study the ecosystem and biodiversity of sand flat. Under the guidance of instructors from Ho Koon Nature Education Centre, students participated in the sampling, data analysis and presentation of findings, which further their understanding of marine organisms living in sand flat.



Technology

Robo-soccer competition

The competition requires students to program and assemble robots. Students were required to assemble circuit boards, motors and wires from scratch, and then program and create control software. They applied knowledge from different disciplines to build their own unique program-controlled robots creatively.



Engineering

Robomaster youth tour

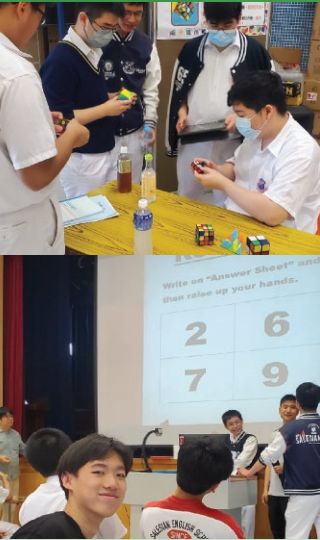
RoboMaster is a brand-new format of robot combat competition founded by DJI, in which participants form teams and engage in 4 VS 4 tactical shooting battles by operating their self-developed or modified robots themselves. With dedication and cooperation, our team won the 1st runner up in the heat held in summer 2022!



Mathematics

Math Week

To popularise the use of mathematics in a fun and challenging way, we organise a funfair every year to provide a variety of mathematics-based game booths to students. Popular games in the funfair, like 24 battles, colouring puzzles and Rubik's cube speed-run, allow students to practise logical deduction and mathematical skills which they always find interesting.



Extra-curricular Activities

Academic clubs

Many STEAM activities are held during meetings organised by different ECA clubs throughout the year, including



Science club

Robotics club



Maths club

Program design club

Art club

Major Awards

Here lists the major prizes won by students in 2022-23.

Prizes (2022-23 academic year)	
Events / Competitions	Awards
Science	
HKASME Hong Kong Biology Literacy award (22-23)	<ul style="list-style-type: none"><li>▪ First class honour (x1)</li><li>▪ Merit (x2)</li><li>▪ Active participation (x1)</li></ul>
Space seed programme	<ul style="list-style-type: none"><li>▪ Best cooperation award</li><li>▪ Merit</li></ul>
Chemists Online “Self-study Award Scheme	<ul style="list-style-type: none"><li>▪ Diamond (x4)</li><li>▪ Silver (x1)</li><li>▪ Bronze (x1)</li></ul>
Technology	
56 <sup>th</sup> Joint School Science Exhibition	<ul style="list-style-type: none"><li>▪ Finalist</li><li>▪ Most popular booth</li></ul>
Engineering	
HK Primary and Secondary Schools Environmental Protection Wind Turbine STEM Creative Competition	<ul style="list-style-type: none"><li>▪ Environmental Design Award: First prize</li><li>▪ Most popular video clip: Second prize</li></ul>
World Robotics Olympiad 2023	<ul style="list-style-type: none"><li>▪ Silver Lego Award</li></ul>
RoboMaster Youth Tournament 2022 - Heat	<ul style="list-style-type: none"><li>▪ 1<sup>st</sup> Runner Up</li></ul>
Robotics Intelligence DIY 2023	<ul style="list-style-type: none"><li>▪ 3 RIDIY Stars Level (x2)</li><li>▪ Best Challenge Spirit Award</li></ul>
FIRST® LEGO® League Challenge 2022-23	<ul style="list-style-type: none"><li>▪ Second class honour (x4)</li></ul>
Mathematics	
Greater Bay Area Gifted Math Competition (Hong Kong) 2022	<ul style="list-style-type: none"><li>▪ Silver award</li></ul>
Greater Bay Area Mathematical Olympiad Preliminary Round 2023 (HK Region)	<ul style="list-style-type: none"><li>▪ First class honour (x1)</li><li>▪ Second class honour (x14)</li><li>▪ Third class honour (x16)</li></ul>
HKIMO 2023 - Heat	<ul style="list-style-type: none"><li>▪ Gold award (x1)</li><li>▪ Silver award (x10)</li><li>▪ Bronze award (x5)</li></ul>
40 <sup>th</sup> Hong Kong Mathematics Olympiad	<ul style="list-style-type: none"><li>▪ Honourable mention (x2)</li></ul>
HKIMO 2023	<ul style="list-style-type: none"><li>▪ Silver award (x2)</li><li>▪ Bronze award (x6)</li><li>▪ Merit (x1)</li></ul>

Physics

CLP Low Carbon Energy Education Centre Visit

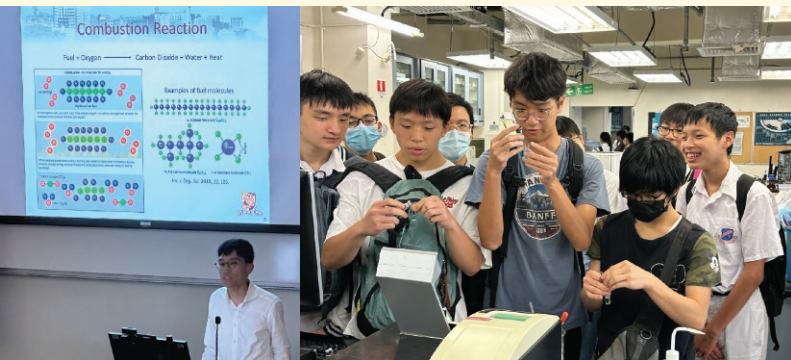
The Physics and Chemistry Departments arranged a visit to the CLP Low Carbon Energy Education Centre in the City University of Hong Kong after the school dismissal ceremony. Through the guided tours and exhibitions, students were able to gain a deeper understanding of the feasibility and importance of various low carbon energy sources and their future development



Chemistry

CUHK Popular Science Talk

To further convey the concept of sustainable development to our chemistry students, we attended the talk "Can We Turn Carbon Dioxide into Fuels?" delivered by our alumni, Dr. Donald Chan from the Chemistry department of CUHK. Students were introduced with new insights in sustainable fuel production and gained first-hand experience in different analytical chemistry equipment from the complimentary lab visit provided after the talk.



Biotechnology

Species identification workshop

Collaborated with CARITAS Chan Chun Ha Field Studies Centre, This workshop teaches skills in species identification under the biotechnology elective of DSE Biology, including DNA extraction for electrophoresis, identify GM food, as well as to dissect drosophila larva to observe polytene chromosomes.



Eastern District Drone Training Course

Our school participates in the Eastern Drone Training Program to expose students to more oriented STEAM education. During the recruitment process, a large number of students were interested in this program. During the course, the students performed very well and were very interested in the control and theory of drones.



InnoTech Expo

The exhibition showcased the progress of our country's technological innovation and scientific development under the 13th Five-year plan, as well as the innovative breakthrough of Hong Kong in the past 25 years. Students can know more about the recent STEM development of our country and Hong Kong.



In-house programming curriculum

We adopt a school-based curriculum on IT education for junior form students, to help them grasp the basics of programming skills and artificial intelligence (AI) for future endeavours.

- S1:** AI, Micro:bit (Python-Blocks language), Scratch (Blocks language)
- S2:** AI, Micro:bit Cutebot (Robot & Python: Text-based language)
- S3:** HTML, JavaScript, AI, Database & SQL

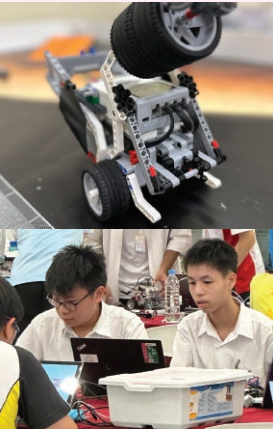
Robot Intelligence – DIY Competition (RI-DIY)

RIDIY is a robotics competition focusing on skills in instant problem-solving, robotic design, component assembly as well as programming. This year, our robotics team members built a Lego EV3 which can travel great distance without the use of wheels. Their hard-work and creativity eventually won us some prizes!



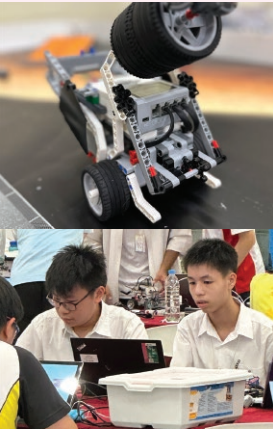
FIRST® LEGO® League Challenge (FLL)

This year, our robotics team members used Lego SPIKE™ Prime robot to complete a series of assigned tasks, which required good skills in robot design, coding, precise control and teamwork. All of our four teams participated won second-class honour award.



World Robotics Olympiad (WRO)

WRO HK is an annual robot competition using Lego EV3 Mindstorm robots and programming to perform challenging tasks. Our robotics team has been participating in the competition since 2014 and winning for a few times already! This year in "Space Mission", students need to use their creativity to complete 10 missions in one go within 2 minutes.



S2 STEM Project

Each year we deliver a Self-directed learning (SDL) module to our S2 students, which involve the collaborative work among the Integrated Science, Mathematics and Computer Literacy curriculum. The project takes inspiration from the COVID-19 pandemic and requires students to conduct scientific investigation and engineering design process to design an indoor slide for children to play with. This module once won the prizes of the SDL Teacher Award Scheme organised by HKU during the pandemic.

