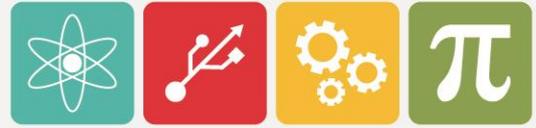




**SINGAPORE  
INTERNATIONAL  
SCHOOL**

# STEM



Science • Technology • Engineering • Math

# NEWSLETTER

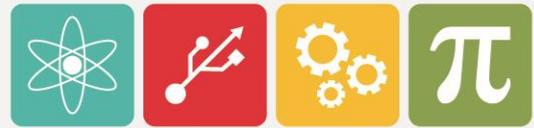
SIS @ BINH DUONG

December 2020

## INTRODUCTION OF STEM AT SIS@BDNC – INCLUDING CODING AND ROBOTICS

The world is changing around us. Current jobs are disappearing due to automation and new jobs are emerging every day as a result of technological advances. In this ever-changing, increasingly complex world, it's more important than ever that our youths are prepared to bring knowledge and skills to make decisions, to solve problems and to adapt to this changing world. These are the kinds of skills that students develop in science, technology, engineering, and math - disciplines collectively known as STEM. At KinderWorld, our STEM program has been designed to allow our youths to use their knowledge and skills to solve real world problems. These are the type of challenges that will face us all in the future. Our STEM program will also provide new knowledge in exciting areas of technological development such as Robotics, Coding and Artificial Intelligence. We believe skills developed by students through our STEM program provide them with the foundation to succeed at school and beyond.

**Dr. Chuong Nguyen – STEM Programmes Manager**



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With the incorporation of Coding and Robotics into our STEM curriculum, the students at SIS Binh Duong New City have been having a great time learning all about the robots, mTiny and Codey Rocky.

Harnessing the power of mBlock software, Codey Rocky allows our primary-school students to create dot matrix animations, design games and realize AI and IoT applications, all while exploring the fun interface of the Codey Rocky robot.

We also learnt about the K-Y1 centered STEM robot mTiny, which is an early education robot for children growing up in the digital age. Its Tap Pen Controller is a coding tool that exercises children's logical thinking and problem-solving abilities. It brings computer programming into children's real life, using coding cards and various themed map blocks to create through highly interactive, stimulating, and fun games.

Under the guidance of Dr. Chuong, the students and teachers at BDNC, are enjoying learning about Coding and Robotics. The lessons are filled with many excited exclamations, as the children learnt how to make Codey Rocky follow their individual commands. The teachers also had a great time testing out the new robots, which will be an integral part of their STEM curriculum in the near future.





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Aside from the introduction to Coding and Robotics, this year the students of BDNC have been working hard to incorporate STEM into their everyday thinking! With our new STEM activities, students are excited to show-off some of the cool new concepts they are working on.

## ROBOTICS CLUB

The robotics club, run by Ms. Amy and Mr. Jonathan, was a great exercise at exploring the endless opportunities of the UB Tech Stem Kit. The club decided to build a boom gate and was challenged with creating a code which had to open and close the boom based on whether an object was in front of the gate. The students finally got to finish the build before the end of the term – see photos below. We look forward to more exciting stem tasks in the future during STEM club activities, which will hopefully include:

1. Robotics Club for secondary students
2. Mtiny and Codey Rocky club for Year 2-4 students
3. 3D Printing clubs for Year 3 upwards
4. Coding clubs for Year 1 upwards



## IGCSE 1 – STEM

This semester the IGCSE1 students looked into the effects, implementation and other appropriate considerations of Smart streetlamps. They researched and evaluating the possible benefits and ethical issues that could arise from the use of these Smart streetlamps.



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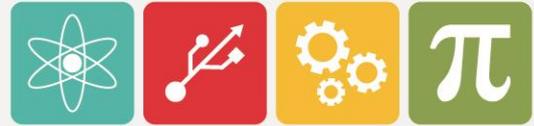
## STEM Club Year 6-9

The STEM club for Year 6-9 worked on building their understanding of computational thinking and how it applies to the solving of problems using robotics. They had fun solving simple problems using robots.

## YEAR 1 - Brilliant Bubbles

In Term 2, the Year 1 students have been working through the Brilliant Bubbles unit, culminating in a Giant bubble blowing stall at our recent Christmas fair. The task was to investigate making bubbles of different shapes, colours and sizes. Students were enthusiastic to become Scientists as they investigated with different shaped bubble blowers. They were sure they could make bubbles of any shape by just using a shaped wand and consequently were amazed that all bubbles floated up in a sphere shape. Next, they tested making coloured bubbles by using food colouring and, again, students were convinced all bubbles would be the same colour as the mixture when they floated in to the sky. Turns out, all bubbles are the same, reflecting light from the sun, making a rainbow appearance. Finally, they wanted to see if they could make bubbles of different sizes. They experimented with various bubble mixtures and discovered it was achievable to make giant bubbles by adjusting the blowing mixture and various rings and wands. For the students in Year 1, STEM has been an area of the curriculum which they eagerly look forward to each week. We look forward to exploring Robotics, next semester.





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## YEAR 6 – Tree Trouble

This activity was designed to get students thinking about trees as habitats for other living things. There's a debate going on in *Treedwell* about the fate of an old tree. Should it be demolished to make way for new housing or will the biodiversity and the shade it provides be too precious? Throughout the activity, students discussed whether cutting down an old tree is a good idea and why, as well as, finding out about the biodiversity that a tree supports through research and looking for living things on and around a tree.



## Conclusion

Overall, the STEM program at BDNC is steadily growing, with a strong focus on coding and robotics being planned for Semester 2, adding more innovative components to intrigue and captivate the students at all levels! With the introduction of Codey Rocky for Primary students and mTiny for the KIK and Year 1 students, every child in SIS BDNC has the potential to understand and create with coding and robotics, and learn about AI and become truly technologically proficient in the coming years! We are very excited to see the exploration of the Robotics program and the continued use of the Crest Awards curriculum in the coming terms!