

# Learning through STEM

at Hong Kong Christian Service Cheung Wah Child Care Centre

Group 13 Edutainer

## Introduction

With a view to assisting students with special educational needs (SEN), our group would like to incorporate some STEM elements into intervention programs for improving social skills. Interpersonal relationship is an integral part of life and could be difficult for children to handle. They may not be aware of others' feelings and attitudes towards certain behaviors so they, more often than not, need more guidance and explicit instruction on how to conform to social norms. To this end, our intervention is aimed at enhancing students' reading ability, and more importantly, social skills. This program could then be more effective because these are considered life-long skills which students have to practice in everyday life.

## Service site

### Community Partner and Clients

Hong Kong Christian Service Cheung Wah Child Care Centre is the community partner which we will be cooperating with. Its aim is to enhance students' physical, intellectual language, emotional and social development, especially who are physical and/or mental disability, learning disabilities, autism and having behavioral problems between two to six years old. Our partner hope that U-STEMist can help create an useful educational tool for their students and the project group mates might first operate a or a few of activities for their students as a try out. Hence, to send the educational tool to the center as a long term tool for future students.



## Limitation and difficulties encountered

### Lesson Planning

It is important to ask for advice and consult our mentor and teaching professionals because we may not have a good grasp of students' needs, interests and abilities so we did have hard time designing well-thought-out lesson plans that suit the students most.

### Classroom Discipline

We struggled to draw and maintain students' attention when we gave instructions through demonstrations and delivered the teaching content.

## Deliverables

### Social Stories

A daily life scenario (storyboard) is framed into a social story consists of descriptive, perspective, directive, and affirmative sentences. By looking at social stories, younger learners could be able to conceptualize and understand the content more easily. Meanwhile, the content is specifically targeted at learners' needs for acquiring interpersonal skills because they often have to deal with people in different places such as schools and parks. It is important for them to learn how to communicate and get along with others well, especially for those who wish to study in mainstream schools.

### Reading Component

We go through all the sentences in the scenario with children together. We ask students to read aloud and check their comprehension where necessary.

### STEM elements & Training

#### Social Skills

Students have to decide on how their behave in a given situation on a robot (micro:bit)/App which would have a corresponding reaction.

#### Motor Skills

Students are provided with ample opportunities to practise movement and coordination of their different body parts to perform certain tasks with the help of technological tools like apps and micro:bit.

1.描述句	我叫陳小明。 每個人都有想要的東西。 有時同學會一起玩玩具。
2.透視性	很多人都想玩玩具。 如果我和同學爭玩具，老師和同學會感到不高興。
3.肯定性	所以，如果有想要的東西，就要說出來。 要讓別人知道你的想法。 這是很重要的。
4.指示性	我可以嘗試有禮貌地表達自己的想法。 我可以嘗試主動提出和同學分享玩具。

1.描述句	我叫張小聰。 每個人也有想要的東西。 有時東西可以一起使用。
2.透視性	很多人都想玩玩具。 如果我自己玩玩具，其他同學便不能玩。
3.肯定性	所以，如果同學有想玩的玩具，就要主動邀請他們一起玩。 要學會分享。 這是很重要的。
4.指示性	我可以嘗試理解別人同樣想要某樣東西的想法。 我可以嘗試主動提出和同學分享玩具。

## Evaluation and expected outcome

### Observation and Application

Students in general have acquired a basic understanding of learning content, such as performing social skills accordingly in a given context and world knowledge about how food is delivered. Their learning motivation has been shown in their active participation in the workshops but giving instructions and maintaining their attention have proven to be the biggest challenges. Students were able to apply what they have learnt in the activities, for example, sharing toys with others and following instructions.

The purpose of our project is to train SEN students how to be polite and the skills of communicating such as how to apologize, how to say thank you and how to share things with the others through STEM activities. Also, the SEN students could learn the ways to express their feelings and wills. They could learn about how to tell the others that what they want. Therefore, they could cooperate with the others better with the social and communication skills they learn from our project. These could enhance the possibility for them to study in mainstream schools since they know the ways to express their wills and the ways to stay with the others friendly and nicely.

### Individual reflections

**Ann:** This has been an eye-opening and fruitful experience to learn to cater to students with special educational needs by incorporating STEM elements into education. I feel so thankful for having the opportunity to work with our mentor and COP, as well as learn more about lesson planning and application of technological tools. The project would not have been a success without useful advice from the professionals and hard work of my group members.

**William:** In this project, designing a lesson for the kids with special needs is a challenging mission. However, we can arouse their learning interest as well as their life skill through STEM, and it is a successful case to mix inclusive education and STEM together in a lesson. I believe more STEM technologies can be applied to the classes with special needs students in the future.

**Ashley:** Designing a creative lesson plan with STEM is a very big challenge for me since that I have no any experience before and it is my first time to teach students with special needs. I am so thankful for this project for offering me such a great chance to learn more.

**Yuki:** This project not only gave us a chance to have insight on STEM education but also creative minds to help Special Education Needs children in multiple ways. It's a valuable experience to get face to face with SEN children in the kindergarten, only when I participate in this project can I know about the real situation including difficulties in reality of SEN children. Whereas, adding STEM elements into teaching can benefit students from different aspects of learning such as five senses and motor skills. Despite limited time, I treasured the moment getting along with the children and the progress made. I hope there would be more and more comprehensive and useful ways to help SEN students better absorb knowledge from all aspects.

**Ally:** This project has offered me lots of opportunities to contact with SEN and STEM, which both of them are the topics that I always wanted to study. Even though we faced difficulties in putting STEM elements into some of the lesson plans and workshops, mentor and COP have always provided help for us by stating the possibilities of success in our plans. I'm glad and thankful that the U-STEMist has given me this valuable chance.

### Conclusion and recommendations

There is still a big room for improvement if we wish to enhance the long-term effectiveness of the program, for example, training workshops for teachers to capitalize on the benefits of the technological tools and clearer learning objective with well-staged, well structured activities.