

STEM Environmental Friendly House

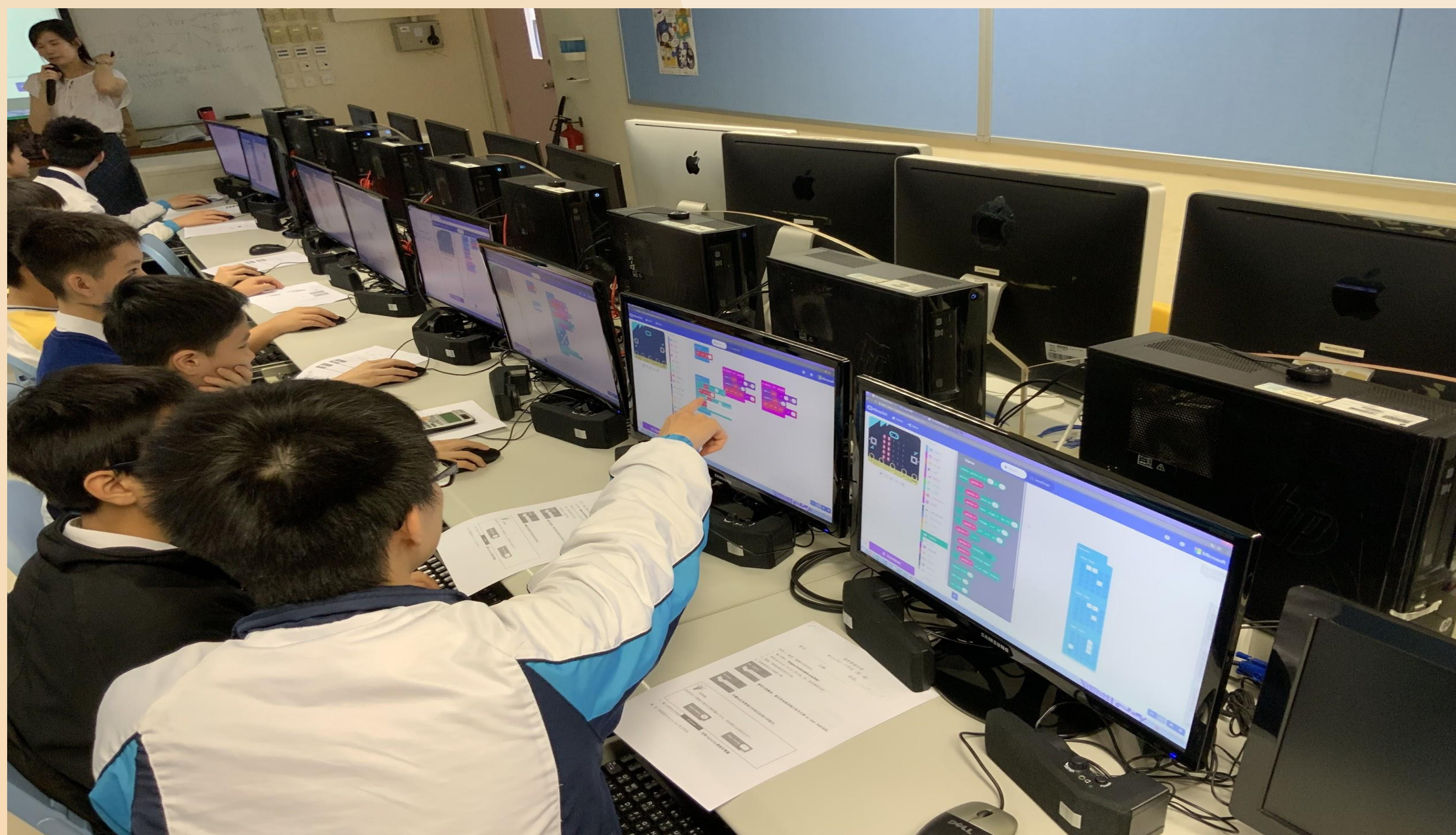
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Project Introduction

We held a 2-day workshop in order to build a simple environmental friendly house for about 16 junior form students who are divided into 4 groups. We wish that students could understand the seriousness of global warming and the elements of building an environmental friendly house. Thus, in the activity content, light and temperature sensors were applied to guide students to think about the appropriate light and fan intensity for a house structure. Students learnt basic skills of Micro:bit by using it to sense and control the light intensity of light bulb and speed of fan. Finally, students were encouraged to adjust the light intensity and fan speed to a comfortable degree so as to reach an environmental friendly house. After making an environmental friendly house by automatically set of light intensity of light bulb and the speed of fan, students are supposed to realize the role of science and technology in environment, and the application of technology in daily life and understand the long-term and sustainable development when building an environmental friendly house.

Design Rationale

Carmel Holy Word Secondary School is the corporate partner of our team which committed to advocate and promote STEM education in school. For the school-based curriculum, the school try to merge different mathematical-related subjects together. Considering the integration and linkage of different subjects, interdisciplinary STEM education elements are developed in all levels of Science, Computer Literacy and Mathematics. Apart from knowledge, we also hoped to deliver important message that the role of science and technology in environmental protection. We expected students to discover further application of STEM knowledge to their daily life.



Limitation and difficulties

To decide a workshop, it is difficult to guarantee that the event is attractive enough to our target student. We need to make a balance between knowledge and games. As it is an after-class activity, the learning motivation of students may not be high. To draw their attention and raise their interests, we will have to plan the workshop in an interesting manner and maintain the linkage between science and technology at the same time. During the workshop, we may face some practical problems. Micro:bit is a computing board which full of circuit and current, it is easy to burn out if the connection of tools is wrong. Hence, we will have to provide more materials for students. Additional guidance will be given as well due to safety reasons. Besides, we should also pay attention for students' learning diversity. Some of our group mates are not majored in education fields, whom may lack teaching experiences, not to mention we are not professional teachers. Therefore, before the workshop, we may have to rehearsal for a few times in order to familiarise ourselves with the workshop contents.

Individual Reflections

Leung Tsz Ching: This is my pleasure to join the U-STEMist programme which provided me lots of opportunities to explore the possibility of STEM. After attending workshops, I realized that the connection between STEM and our life is unbelievably tight. This project helped my development in future career a lot. I wish to participate more if there is similar events.

Lam Wai Ying: During the preparation of workshops, I realize the role of teachers, such as the limitation of using micro:bit for teaching and planning of activity. Also, via the workshop, I have obtained a deep insight into STEM education regarding the linkage between curriculum design and authentic life since we need to balance four strands of subject in one activity which is related to practical issues. Thus, I am so thankful to be part of the U-STEMist.

Ho Hei Man Erica: This workshop provide a good platform on gaining experience in technology and communication. It provide a chance to communicate with people in difference age level or difference study field. Moreover, throughout the workshop there is significant improvement in creativity and the ability of problem solving ability. I am very glad to join the U-STEMist programme.

Chan Yin Hei, Nicole: This workshop has given an opportunity for me to not only learn to conduct a workshop, but also coordinate with group mates and get to experience leading and teaching a class. Despite all the difficulties we have encountered during the preparation and execution of the workshop, we succeed in overcoming all the hardships and making unforgettable memories. I am so glad that I am an U-STEMist, by which I made new friends and have further understood how STEM is related to our daily lives and how important it is.

Chow Shun Hei Haysan: In my opinion, it is a great opportunity for me to participate in U-STEMist programme as this programme provide a chance for me to work with other students that come from different universities, also to broaden my horizon in STEM education aspect. Overall, I learned how to design a well curriculum and organize interesting activities for students, that could benefit to my education studies and get prepare to become a teacher in my future career.

Conclusion and Recommendations

It is a quite success in our STEM project as our corporate partner - Carmel Holy Word Secondary did provide well support for our project, the coordinator of our project also cooperate well with us and provide sufficient support to assist our process. Furthermore, during the activity stage, students that participate in our project showed a lot of interest and did enjoy the topic of micro-bit and environmental house. However, due to the time limitation of our project, we only can carry two lessons for our students, it is clearly that there is not enough time for students to absorb all of the information that we would like them to know. Therefore, for the next U-STEMist event, it will be better for us to provide more time to carry on our activity.