SJ-2: ENERGY EFFICIENCY SCHOOL CURRICULA

Please fill out this form and return it to info@esci-ksp.org.

Basic Information

Training Curriculum title:

Education Programmes under the Jockey Club BEAM Plus in Schools Project

Training Curriculum Developer/Institution:

Hong Kong Green Building Council

Purpose of this curriculum:

Please provide a brief summary of curriculum, its contents and its purpose.

Funded by The Hong Kong Jockey Club Charities Trust, the Jockey Club BEAM Plus in Schools Project was launched in January 2020 to assist the school sector to reduce carbon footprint and to educate green building concepts to the teachers and students of the participating schools.

Organised by the Business Environment Council, co-organised by the Hong Kong Green Building Council and the BEAM Society Limited, this ground-breaking Project spanned over 45 months with 125 secondary and primary schools participating, accounting for around one-tenth of the total number of schools in Hong Kong. The Project scope consists of three major areas, namely:

1) Retrofitting of energy-efficient equipment such as Grade I Energy Label air-conditioners, LED lighting, solar window films, etc to reduce the carbon emissions at schools;
2) Organising education programmes for students to enhance their awareness and understanding of green building and sustainable living practices such as energy saving and water conservation;
3) Developing the brand new BEAM Plus Existing Schools Assessment Tool and conducting the related assessment for the schools. BEAM Plus is a leading and independent initiative in Hong Kong to assess the sustainability performance of buildings.

While the Project's ultimate goal is to reduce 10% carbon emissions among the 125 participating schools, the purpose of incorporating education elements in the Project is to help the students understand the role of green building and the importance of energy saving to reduce carbon emissions, thus mitigating climate change. The students also had the chance to be involved in the BEAM Plus application to support their schools' move towards green campuses. Ultimately, behavioural change in daily lives among the students could be induced. Moreover, secondary students also had the opportunity to deepen their understanding on the careers related to the green building industry, assisting them to make earlier life planning.

The case submitted here for this Award will mainly focus on the education programmes launched in the Project, which is organised by the Hong Kong Green Building Council.

APEC Economy:

- ☐ Australia
- ☐ Brunei
- ☐ Canada
- ☐ Chile
- ☐ China
- ☒ Hong Kong, China
- ☐ Indonesia
- ☐ Japan
- ☐ Korea
- ☐ Malaysia
- ☐ Mexico
- ☐ New Zealand
- ☐ Papua New Guinea
- ☐ Peru
- ☐ Philippines
- ☐ Russia
- ☐ Singapore
- ☐ Chinese Taipei
- ☐ Thailand
- ☐ United States
- ☐ Viet Nam
- ☐ Non-APEC Economy _____

Audience: choose all that apply, then fill out the corresponding sections below.

- ☒ Elementary
- ☒ Secondary
- ☐ University

Elementary Program

How is the material administered?

Live teacher required

Assessment Methods (e.g. testing)

Please describe assessment methods for this curriculum here.

In Hong Kong, green building is not a stand-alone topic in the curriculum of primary and secondary academic subjects developed by the Education Bureau of the Hong Kong Special Administrative Region. Therefore, the main goal in organising education programmes for primary and secondary students is to raise their awareness about and arouse their interest in the role and importance of green building in the society. We positioned the education programmes as a valuable "Other Learning Experience" for students to widen their horizons and broaden their exposure to sustainable development issues in the built environment.

In view of this, the students did not necessarily go through a formal assessment after participating in the various education programmes. However, to solidify their learnings, a set of student worksheets at Junior and Senior Primary levels were developed to assist teachers to review and evaluate students' learning outcome.

Programs for implementing the curriculum

Please describe programs for implementing the curriculum here.

A train-the-trainer approach was adopted in designing the education programmes. Capacity Building Workshops were held for the teachers of all the 125 participating schools. After the Workshops, the trained teachers had acquired the knowledge on:

- Overview of the Project
- Basic Green Building Concept and Sustainable Practices
- Training Kit Materials available and the suggested usage guideline

Teachers were requested to plan the education activities with the adoption of training materials that fit the students' level and interest.

The advantages of adopting the Train-the-Trainer approach are:

- Reach a large number of students in each school with the support of the teachers
- Allow flexibility for teachers to customise the most appropriate training to their students according to their academic level, interest and school culture; it was a very important feature considering the fact that the Project needed to cover 125 local schools in Hong Kong.

Here is a summary of training materials that we provided for primary students:

Education Materials	Description	Suggested usage by teachers
1. Electronic Poster	• An e-poster briefly explaining the Project details	• To circulate to the parents and students via e-class notification to show the school's commitment to a sustainable campus
2. School Talk Video	• A video about green building introduction • As a substitute to replace face-to-face school talk by green	• The video was divided into sections on different topics. Teachers could select suitable topics to display

	building experts due to the pandemic in 2020-2022	
3. Educational Videos	Two humorous videos available, namely: i) How to become a green school? ii) Extreme weather and green building	• Can display the videos in in-class training to support the explanation about the Project • Can also post in e-learning platform for students' leisure viewing
4. Teacher powerpoint for in-class training	• A comprehensive presentation covering various topics from climate change to energy saving • With suggested script for teachers' reference	• Can extract the proper session or edit as appropriate for in-class training
5. Student Worksheets	• Three sets of bilingual worksheets with suggested answers with different levels to fit the needs of junior and senior primary students	• Share to students after in-class training to solidify their learning
6. Digital Game	• A online game platform for students to acquire green building and sustainable practices in a fun and engaging manner	• Share the link and login to students for their leisure playing
7. Green Building Tour	• A tour displaying a BEAM Plus certified building in Hong Kong • A substitute to replace physical green building tour due to the pandemic in 2020-2022	• Share to students after in-class training • Enable students to understand the actual operation of a green building in Hong Kong

The topics covered in the training materials include:

- Global Climate Change and Hong Kong's situation
- Carbon Emissions in Hong Kong
- The Role of Green Building
- What is BEAM Plus?
- Health & Wellbeing in Green Building
- Green Building Tour Video

We believe through the empowerment of the teachers and the interactive and engaging training materials, we have provoked self-directed learning in the primary students, sowing the sustainability seeds in their minds at an early stage.

How is effectiveness of the curriculum measured?

Please describe methods of self-evaluation here.

Surveys were conducted for students who joined the training with the materials provided to measure the effectiveness of the training activities from three major perspectives, namely “Knowledge”, “Attitude” and “Behaviour”. These three perspectives were interconnected. They could impact students’ actions towards sustainability practices eventually.

Collectively, the feedback collected were:

1. **KNOWLEDGE** - address if the training programmes can enhance students’ knowledge
   87% of students have enhanced their understanding on carbon reduction and green building concepts.

2. **ATTITUDE** – address if the training programme can change students’ attitude
   81% of students expressed interest to learn more about carbon reduction and BEAM Plus projects.

3. **BEHAVIOUR** – address if the training programmes can induce students’ behavourial change
   84% of students will share the training kit information with friends and families and be willing to adopt environmentally friendly practices in daily lives.

Curriculum or Interactive Media Website:

Enter a project website.

There is no website for posting the training materials publicly because all the materials were intended for those schools participating in the Project only. The training materials for primary schools are here for reference:

https://drive.google.com/drive/folders/1yP8Bn_HiSr29LQYni9gTVHhrDUgURCns?usp=sharing

Secondary Program

How is the material administered?

Live teacher required

Assessment Methods (e.g. testing)

Please describe assessment methods for this curriculum here.

The education activities outlined in the Primary Programme were also carried out for Secondary students, but with different sets of training kit materials tailored to their learning needs and levels. As the same training approach was adopted, no formal assessment was developed. However, same as the primary sector, a set of student worksheets for Junior and Senior Secondary levels were developed to reinforce students’ learning.

Meanwhile, a special student activity, the Green Building Student Ambassador Programme, was launched specifically for secondary students from the participating schools. A learning outcome sharing session was conducted at the end of the Student Ambassador Programme, during which industry experts were invited to evaluate the tasks carried out by the Ambassadors at their schools and to share insights.

Programs for implementing the curriculum

Please describe programs for implementing the curriculum here.

The Green Building Student Ambassador Programme was designed for those students who were keen to gain more in-depth knowledge about green building and sustainability, with the goal of nurturing them to be the leaders of tomorrow.

After taking part in the in-class training conducted by the teachers, the students, in general, had acquired some basic understanding on green building and energy efficiency. The teachers then nominated the students with potential to join the Student Ambassador Programme. Collectively, over 150 Student Ambassadors in Form 3 to Form 5 from over 30 secondary schools were recruited.

A series of workshops were arranged covering a versatile of topics from hardcore green building knowledge to soft skills such as presentation skills, design thinking and creative idea expression, etc. After attending the workshops, the Student Ambassadors were expected to represent their schools to present the green features of their schools to other visitors or guests at open day or external events.

Training Programme of Student Ambassador Programme:

	Training Topics	**Speakers**	**Purpose/Elaboration**
1	Green Building Fundamentals covering topics: • Green Building – Beyond What You Know • BEAM Plus Existing Schools Certification • Careers in Green Building Industry *(Urban Planning, Retro-Commissioning and Retro-fitting profession)*	Green Building Professionals and industry practitioners	• An online webinar (due to the pandemic) that can cater for all the Student Ambassadors in one go
2.	Design Thinking Workshop	External Professional Trainers	• How to boost awareness & interest in Green Building • Identify pain points and general ideation

3.	Creative Idea Expression	External Professional Trainer	• How to generate creative content? • How to attract the audience? • Role playing session
4.	Confidence Enhancement in Presentation	External Professional Trainer	• Presentation with 5 senses • Verbal and Nonverbal Communication • Interactive Workshop

After joining the training series, the Student Ambassadors had a period of 2 months to conduct a small project at their schools on one of the topics:

- Promoting green school concepts to peers and introducing the green measures/facilities adopted by their schools
- Suggesting a Green Campus Lifestyle Plan at school and how to encourage students to adopt green behaviours

The Student Ambassadors were required to relate their projects to at least one of the assessment criteria of the BEAM Plus Existing Schools assessment tool, namely:

- Sustainable Leadership & Learning
- Efficient Use of Resources
- Sustainable Campus Environment
- Health, Comfort & Happiness

A sharing session was arranged to gather all the Student Ambassadors together, in which they were asked to share their learning outcomes from launching the school project. The trainers and green building experts were invited to review students' presentations and share insights with the Student Ambassadors. Other than standard Powerpoint presentation, some of them presented their projects via creative and humorous videos to capture attention. The trainers were very impressed and it was a concrete proof that the students had applied what they had learned in their projects.

The trainers selected the "Best Presentation Team" to recognise the hard work and dedication of the Student Ambassadors. Moreover, all the Student Ambassadors also voted for their "Most Voted Presentation Team". The voting between peers allowed greater involvement of all the Student Ambassadors and encouraged peer learning among them.

The experiential learning did not end with the learning outcome sharing session. There were also different exposure opportunities to showcase their learnings to others, such as:

- Media Interview (https://www.youtube.com/watch?v=xlPuFOHbRBw&t=1s at 2:21)
- Sharing in the Closing Ceremony of the Project with over 150 guests including school principals and teachers attending

All these exposures allowed the students to widen their horizons. It also provided valuable opportunities for them to acquire new lifelong knowledge which was outside the scope of their academic curriculum.

It is also noted that there were many student ambassador initiatives organised by other organisations in Hong Kong. However, the Green Building Student Ambassador Programme offered in the Project differs from them in several ways:

1. From the Green Prefect Programme organised by the Environment and Ecology Bureau of The Hong Kong Special Administrative Region to the general "Environmental Ambassador" arranged by the student environmental club at schools, the content tended to relate to general environmental protection practices. Our Student Ambassador Programme is more focused to instill green building and energy efficiency knowledge.

2. More importantly, our Student Ambassador Programme provided a more macro perspective to the participating students, aiming to nurturing them to become the Green Building Leaders of Tomorrow. Therefore, extra resources and effort were paid to design the Programme. In terms of green building related hardcore knowledge, apart from attending an informative webinar conducted by experts in different green building fields, the Student Ambassador had the opportunity to meet with the experts and exchange with them in the sharing session. Moreover, the experts were also invited to share their working lives to the students, to make the content more fruitful.

3. We had a strong belief that just enriching students' technical knowledge was not enough to make them become a leader. Therefore, soft skill training sessions such as presentation skill, design thinking, etc conducted by external professional trainers were also arranged. Under normal circumstances, the secondary schools in Hong Kong might not have the resources to organise similar kind of trainings for their students.

4. On the other hand, the handpicked Student Ambassadors were required to demonstrate a high level of commitment in joining this Programme because all the training sessions were conducted on Saturdays, which means they needed to spare their own time to join. This also provided them with the opportunity to learn effective time management.

How is effectiveness of the curriculum measured?

The Student Ambassadors who had over 80% attendance in the training series would receive a Certificate of Achievement, enriching their personal profile for further study.

A survey was conducted to collect the feedback from the Student Ambassadors about joining this Programme from three major perspectives, namely "Knowledge", "Attitude" and "Behaviour". These three perspectives were interconnected. They could impact students' actions towards sustainability practices eventually.

1. **KNOWLEDGE** – address if the Student Ambassador Programme can enhance their hardcore and soft skill knowledge:

88% students have enhanced knowledge on technical skills related to carbon reduction and soft skills on presentation.

2. **ATTITUDE** – address if the Student Ambassador Programme can enhance students' interest in green building:
   87% students expressed interest to learn more about BEAM Plus assessment tool.
3. **BEHAVIOUR –** address if the Student Ambassdor Programme can induce students behavioural change:
   86% student would promote green features of their schools to members of the public.

Curriculum or Interactive Media Website:

The training materials for secondary schools are here for reference:
https://drive.google.com/drive/folders/1xsWgBxOeW_b9wmIjb43s2A99KGJbmm2t?usp=sharing

A highlight video on the Green Building Student Ambassador Programme:
https://www.youtube.com/watch?v=icgSRuU8UBE&t=4s

University Program

How is the material administered?
Choose an item.

Assessment Methods (e.g. testing)
Please describe assessment methods for this curriculum here.

Programs for implementing the curriculum
Please describe programs for implementing the curriculum here.

How is effectiveness of the curriculum measured?
Please describe methods of self-evaluation here.

Curriculum or Interactive Media Website:
Enter a project website.

Additional Project Details

Image:

Please attach an image that represents this project.

Project logo

Project e-poster

Upload:

Please attach a file associated with your project.

Photos on the training workshops:
https://drive.google.com/drive/folders/1Ev9TlfmHu1XBkwSADChtxPoh6vYS38M8?usp=drive_link

Photos on the Learning Outcome Sharing Session:
https://drive.google.com/drive/folders/1HifP_Jl35K1eoS1aWTGtak77-LoyW38E?usp=drive_link

A wrap-up video of the Closing Ceremony of the Project:
https://www.youtube.com/watch?v=-W3Qr7vYpwk

Project Website:

Please provide the project website.

A glimpse of the Project:
https://www.hkgbc.org.hk/eng/engagement/public-initiatives/jockeyclub-beamplus-in-schools-project/index.jsp

Special Remarks:

The outcome of this ground-breaking Project was overwhelming, in the sense that the educational activities had reached over **55,000 students** in total, outranging the KPI assigned by the Funder, The Hong Kong Jockey Club Charities Trust, by **over 30%.**

Riding on the success, the Funder has approved a new phase of Project, **The Jockey Club Energy Saver in Schools Project,** in October 2023 (https://jcenergysaver.hk/). The new Project has a similar scope as the previous one by providing seamless support to the participating schools from retrofitting, education to certification. However, the funding amount on education has been significantly increased. It will allow us to create more educational materials such as virtual green building tours, green building board games, etc and organise more student activities such as inter-school green building competitions and green building studycation to further enhance students' learning experience.

The new phase of Project will last for **5 years till September 2028**. Together, the two Jockey Club-funded Projects are expected to reach **over 140,000 students** and certify **over 290 schools** with BEAM Plus Existing Schools in 8.5 years, representing more than **one-fourth** of the total number of schools in Hong Kong.

Contact Information

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