

Student-centered Inquiry-based Learning

Inquiry-based learning encourages students to ask questions, collect data from various sources, seek answers and propose solutions through practice, thereby gaining a deeper understanding of the learning topic. This approach could enhance students' creativity, critical thinking, and problem-solving abilities.

Let's take a look at how two secondary schools awarded with the Outstanding Award in the “Best Green Education Initiative Award” under 2021 Hong Kong Awards for Environmental Excellence (Schools Sector) adopted inquiry-based learning approach to promote sustainable development at schools.

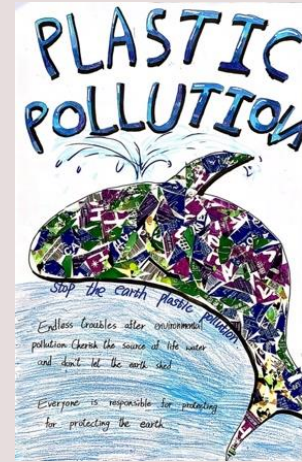
Education Initiative 1: Thinking and Creating a Better World

(HKSKH Bishop Hall Secondary School)

Theme:	Sustainable Urban Living
Learning objectives:	<ul style="list-style-type: none">• Understand the definition of “Sustainable Development” and its related Sustainable Development Goals (SDGs) for urban environment• Enhance awareness of personal, social and environmental issues• Utilise micro:bit technology to create small inventions that address or improve urban problems• Integrate knowledge and skills from different disciplines for in-depth learning• Develop critical thinking, self-directed learning, creativity, and problem-solving skills
Target audience:	Secondary 2 students
Subject(s) involved:	Cross-curriculum STEAM Project Learning Programme, which integrated Humanities, Career Planning, Geography, Science, Computer Studies, Visual Art, English Language
Year of implementation:	2020-21 (4-months period project)
Content:	<p>1. Understanding urban environmental problem</p> <p>Students were divided into small groups to choose a Hong Kong urban issue or phenomenon on environment as their inquiry topic, such as temperature rise and air pollution. They explored the current situation, causes, and impacts related to their selected issue.</p>

2. Presentation

Each group presented their collected data and knowledge learnt from different subjects to other students through various formats, such as text, videos, posters etc.



3. Designing small inventions/models using micro:bit

Students designed an intelligent device or created a model with explanatory diagrams, attempting to solve or improve the urban environmental issue.



Highlights:

- 👍 **Students** could **take the lead** and decide on the group's topic based on their observations and discussion results, which promoted students' engagement and enabled mutual learning from their peers' achievements.
- 👍 **Cooperation among different subject panels** was demonstrated at the development and implementation stages.
- 👍 An external organisation was invited to teach students the skills of micro:bit operations to encourage problem solving **using modern technology**.
- 👍 The scheme was evaluated through **pre- and post-student questionnaires**, as well as through self-, peers' and teacher's assessment at different stages of the project.
- 👍 Based on the evaluation result of previous year's implementation, the theme of the project of this year was changed from "Global Warming" to "Sustainable Development", which allowed students to understand different environmental issues in daily life.

Education Initiative 2: Don't be a Big Waster

(Toi Shan Association College)

Theme:	Food waste issue in Hong Kong Do you agree that “The government should bare the greatest responsibility for the food waste problem in Hong Kong”?
Learning objectives:	<ul style="list-style-type: none">• Understand the situation and causes of food waste in Hong Kong, as well as policies and limitations in addressing the issue• Foster a positive value on cherishing food• Take responsibility in solving the food waste problem in Hong Kong collectively• Practise sustainable dietary habits and promote them to others
Target audience:	Secondary 4 students
Subject(s) involved:	Liberal Studies
Year of implementation:	2020-21

Content:	<ol style="list-style-type: none">1. Classroom exploration Students were grouped for small group discussions to understand the causes and impacts of Hong Kong's food waste problem from different stakeholders' perspectives.2. Out-of-classroom exploration Students documented their personal dietary habits to reflect on their responsibilities as family members and consumers in relation to household and commercial food waste. Students conducted interviews with parents and restaurant owners in the community, collected data independently to construct the lesson together.
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Record of personal dietary habits



Interview with parents and restaurant owner

3. Nurturing positive values

Students engaged in value judgement to understand their own values and those of different stakeholders, as well as the connection with the food waste problem. They put their values into practice by designing nutritious and environmentally friendly recipes and introducing them to parents and restaurant owners.



“Less Food Waste” Recipes Cooking Competition

Highlights:

- 👍 The **student-initiative approach** of this project allowed students to explore the issue of food waste in their own ways, with teachers' facilitation.
- 👍 The issue was investigated in **multiple perspectives**. Students were provided with opportunities to collect first-hand information about the food waste issue and understand the views and opinions of different stakeholders.
- 👍 Recording personal dietary habits induced **reflection of own values and behavioral changes**.
- 👍 The project was concluded by designing and implementing "Less Food Waste" recipes with other stakeholders serving as judges. This allowed students to apply what they have learnt and share the learning outcomes with the stakeholders (parents and restaurant owners).
- 👍 The school participated in the QEF Thematic Network Dissemination Seminar and **shared its experiences** in implementing this project with other schools.

Conclusion

Similarities of the two initiatives:

- ✓ The **theme** of the learning activities is **connected to students' daily lives**, which helps to integrate the knowledge learned with students' life experiences.
- ✓ Both initiatives included **a diverse range of learning activities** and allowed students to acquire new skills and experiences through using micro:bit, designing recipes and cooking, which could increase students' learning interest and participation.
- ✓ **Independent learning opportunities** were provided for students to create unique outcomes, which could deepen their impression and provide a sense of accomplishment.
- ✓ Students were assigned to **perform different roles** during group discussions and **peer reviews** were conducted after collaboration, which could enhance the effectiveness of group learning.