



# Low Carbon PLS Day

Teaching Resources for Secondary School



Package-free



Eat Local



Eat Seasonal



# Low Carbon PLS Day

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## “Low Carbon PLS” Day Background Information



In everyday life, every process from the production to the consumption of food ingredients generates greenhouse gases. Whether it's transporting non-local ingredients, excessive packaging, or choosing out-of-season ingredients, all of these increase energy consumption and result in higher carbon emissions. Excessive carbon emissions can lead to a series of environmental problems, impacting ecosystems and animal habitats.

Practicing a low carbon diet is an effective way to address climate change. The three major principles of low carbon diet include shopping Package-free, eating Locally and eating Seasonally, thereby reduce the environmental impact of food production.

The Hong Kong Ocean Park Conservation Alliance aims to promote the concept of a low carbon diet through the "Low Carbon, PLS" Day campaign, encouraging students to develop low carbon eating habits in their campus life.

At the student level, students can learn about the impact of food ingredients on carbon emissions through the "Low Carbon, PLS" Day campaign, and encourage classmates and teachers to practice low carbon eating habits at school.

## Introduction of “Low Carbon PLS” Day Toolkit



This set of toolkit is designed to support teachers in organizing educational activities and promoting the concept of low carbon eating within the school. Through various teaching activities and school-wide extension activities, the toolkit aims to enhance students' understanding of shopping package free foods, consuming local and seasonal foods, and cultivate their habits of low carbon eating.



## Introduction of SEC “Low Carbon PLS” Day Suggested Activities



"Low Carbon, PLS" Day is an activity for this academic year. Schools can assist students in understanding the impact of food on carbon footprint and how consuming local and seasonal food helps reduce carbon emissions through theme-based and extended activities. The relevant knowledge can be integrated into various subjects, and low carbon diets can be practiced on campus.

It is recommended that the activities will lead by Seahorse rangers. Participation of all teachers and students in the "Low Carbon, PLS" Day event is encouraged.

### Main Learning Objective

- Understanding carbon footprint
- Recognizing the impact of carbon emissions on our lives
- Understanding the benefits of consuming local and seasonal food
- Incorporating the concept of low-carbon living education into campus life

### Low Carbon Diet (PLS)



**Package-free**



**Eat Local**



**Eat Seasonal**



# Objective of Suggested Classroom Activities



Relevant Subjects	Biology	Geography	
	Chemistry	Science	Citizenship and Social Development



## Goals

Through teaching activities, students will be able to:

1. Gain a deep understanding of the benefits of choosing local food for carbon reduction.
2. Reflect on and develop feasible and suitable low carbon dietary plans for the school.
3. Learn about planting methods, assess the effectiveness and feasibility of growing local ingredients on campus.
4. Understand the situation of local agriculture.

## Preparation

1. Introduce climate change related issues in class and understand students' knowledge of carbon emissions.
2. Collect news related to local carbon emissions.
3. Explore the location of campus planting and prepare necessary materials.

# Objective of Suggested Classroom Activities



## Introduction

1. By reading the "Hong Kong Climate Action Blueprint 2050" and staying updated on current events related to carbon emissions, students will gain an understanding of Hong Kong's carbon emissions situation and reduction targets.
2. Through presentations and current events discussions, students will explore the impact of excessive carbon emissions in Hong Kong (Teachers can take reference from Supplementary Powerpoint P.4–5).
3. Encourage students to reflect on their daily carbon footprint and introduce the concept of low carbon diet.
  - Guiding questions:
    - Where does daily carbon emissions come from?
    - How can we reduce carbon emissions in our daily lives?

Reference:

"Hong Kong Climate Action Blueprint 2050," (Environment and Ecology Bureau)  
<https://cnsd.gov.hk/tc/climate-ready/blueprints-road-maps/>

# Suggested Classroom Activities



## Part 1:

### Understanding Hong Kong's emission reduction targets and the concept of a low carbon diet

1. Familiarize students with Hong Kong's carbon neutrality goals.
2. Understand the carbon emissions generated throughout the food lifecycle.
3. Reflect on everyday choices in their lives.

#### Example

## Understanding Carbon Footprint

1. Invite students to choose a commonly consumed food in their daily lives.
2. Divide students into groups and discuss the selected food with the highest carbon emission.
3. Invite each group to share their choice and discover factors that would influence carbon footprint.
  - Questions:
    - Where do the food carbon emissions come from?
    - Why does that particular food have the highest food carbon emission?
4. Explain to students the carbon emissions generated throughout the entire food lifecycle (Teachers can take reference from Supplementary Powerpoint P.6).
5. Engage students in group discussions to analyse the carbon emissions of their chosen food item based on different stages of the food lifecycle:
  - Extraction of raw materials (carbon emissions associated with extracting food ingredients, e.g., deforestation for agriculture)
  - Processing and packaging (carbon emissions generated during food processing and packaging)

# Suggested Classroom Activities



## Example (cont.)

- Transportation and distribution (the distance food travel from production to consumers and the impact of transportation on carbon emissions)
  - Purchasing and consumption (carbon emissions from packaging and cooking processes)
6. Allow students to suggest ways to make low carbon choices in their diets (e.g., purchase less packaged food).

## Part 2:

### Understand the 3 major aspects of low carbon diet and relevant knowledge

1. Understand the source of food in daily life
2. Understand the concepts of package free, local food and seasonal food
3. Reflect on how to practice low carbon diet

## Example

### How Well Do You Know About Low Carbon Diet?

1. Divide students into groups of 4 to 6 and conduct a question-and-answer game to strengthen students knowledge on the 3 aspects of low carbon diet (Question examples can be found in the Teaching Materials Powerpoint).

# Suggested Classroom Activities



## Example (cont.)

2. Provide a brief explanation of each question to deepen the students' understanding (Teachers can take reference from Supplementary Powerpoint P.16–27).
3. Invite each group to list how to practice a low carbon diet in their daily lives after the game.
4. Encourage students to suggest ways to promote a low carbon diet in the following areas, and share their ideas:
  - Personal level (e.g., shopping naked stores, choosing seasonal ingredients)
  - School level (e.g., sourcing local ingredients, cultivating food on campus)
  - Community level (e.g., participating in and organizing community events to promote low-carbon diet)

# Suggested Classroom Activities



## Part 3: Research and implement campus planting

1. Understand how planting local and seasonal ingredients can reduce carbon emission.
2. Discover the possibility of campus planting.
3. Understand the issue of planting local food and reflect on the complication of local agriculture.

### Example

## Inter-class local species planting activity

1. Recap the 3 aspects of low carbon diet with students, emphasize the benefits of local and seasonal ingredients and introduce the planting activity.
2. Distribute “Planting Research Form” (Research Form can be found in the Teaching Materials P.3).
3. Assist students in considering planting factors and evaluate the possible locations and species for planting in campus (e.g., rooftop, outdoor playground, parking lot) based on the “Planting Research Form”.
4. After confirming the location and species, students will begin researching the planting method and prepare materials based on “Planting Research Form”.
  - Prepare necessary materials: planting pots, seeds, gloves, shovels, watering cans and soil
5. Encourage students to make their own fertilizers, such as Egg shell, Banana peels, kitchen waste and record how organic fertilizers help achieve low carbon.
6. Each class can start planting and record the process on a weekly basis (Record Form can be found in the Teaching Materials P.4).

# Suggested Classroom Activities



## Example (cont.)

7. Encourage students to allocate different responsibilities themselves, and ensure every student have the chance to participate.
8. Organize a sharing session upon completion to allow students to learn the planting process of others:
  - Share the details of preparation process
  - Showcase the results of planting with any difficulties encountered, improvement methods and guide students to reflect the difficulties of local agriculture.
  - Explain how this activity can achieve carbon reduction

# Suggested Extended Activities



Relevant Subject	Citizenship and Social Development
	Geography
	Home Economics



Through teaching activity, students will be able to:

1. Practice low carbon diet through school wide activities.
2. Cultivate their habits of low carbon diet and enable them to bring these habits back home.
3. Gain a deeper understanding of the importance and benefits of local agriculture.

## Example

### Low carbon recipe competition

#### Preparation

- Organize educational activities to provide students with a deeper understanding of low carbon diets

#### Part 1: Create Low Carbon Recipe

1. Distribute worksheet and guide students to reflect on the actual carbon emissions caused by the ingredients in the daily diet (Worksheet can be found in the Teaching Materials P.5).



# Suggested Extended Activities



## Example (cont.)

2. Invite students to create a low carbon recipe with the goal of preparing a low carbon dinner (Recipe can be found in the Teaching Materials P.6).
3. The selection of ingredients must be based on the three aspects of low carbon diet: Package-free, Eat Local and Eat Seasonal.
4. The recipes can be shared and voted after competition, and one recipe will be selected within the class as the participating recipe for the cooking competition.

## Part 2: Cooking Competition

1. Conduct the competition between classes, with each class selecting 2 students to participate.
2. Set up the competition venue, such as the home economics room (if the school does not have a suitable venue, students are invited to film the cooking process and compete with cooking videos).
3. The competition time limit is 30 minutes.
4. Students will be given 3 minutes to introduce the dish and explain how the recipe achieves low carbon, and judges can taste the dishes.
5. Teachers can prepare awards or prizes in advance.
  - a. Best Culinary Skills Award
  - b. Best Low Carbon Recipe Award
  - c. Most Popular Dish Award

# Suggested Extended Activities



## Example (cont.)

6. Teachers can display the recipes created by students on campus.

- Allow more students to learn about different food combinations and promote low carbon diet within the school
- Students can refer to recipes that interest them and bring the concept of low carbon diet back home

## Low carbon recipe competition

1. Through participating in thematic activities and completing the study, students will understand the local farming culture and the transition of local agriculture.
2. Understand how developing local agriculture can reduce food carbon emissions, maintaining ecosystems, and enhance biodiversity value.

### Preparation

- Prior to the event, teacher can arrange thematic teaching activities to introduce one of the major aspects of low carbon diets: consuming local food
- Prepare relevant current events related to local agriculture and cultivation, or refer to the following segment as an introduction to help students understand the supply of local crops and food



Reference :

"Hong Kong Connection: Unconventional Cultivation" (RTHK Radio Television Hong Kong),

<https://www.youtube.com/watch?v=CRQdlcqToo&t=836s>

# Suggested Extended Activities



## Example (cont.)

1. Enhance students' understanding of local agriculture by organizing various types of activities, including:
  - Lectures: Inviting stakeholders such as conservationists and agricultural experts to give talks on relevant topics
  - Field trips: Arranging visits to different types of farms (e.g., rice fields, fruit orchards, vegetable farms) for students to observe and interview farmers
  - Data collection and mind mapping: Assisting students in gathering and organizing information on local agriculture, as well as analyzing the opportunities and challenges of agriculture in Hong Kong
  - News sharing: Guide students to find news articles related to agriculture and analyzing the current state of local agriculture
2. Guide students to choose topics for their independent research projects based on their interests. Suggestions include:
  - Encourage students to consider different aspects of local agriculture, such as its historical development, limitations and challenges, and its relationship with a low carbon diet
  - Form groups of about five students and facilitate active discussions to explore interesting research topics and objectives
  - Allow each group to propose their own research topic and objectives, subject to approval by the teacher

# Suggested Extended Activities



## Example (cont.)

- Examples of research topics:
  - Explore the diverse values and importance of agriculture by understanding its historical development
  - Examine the limitations and challenges of agriculture in Hong Kong
  - Investigate how local agriculture can adapt to future urban development
  - Analyze the value of agriculture in sustainable development (social, economic, and environmental aspects)
  - Examine how local agriculture can achieve the goal of a low carbon diet

3. Assist students in conducting data collection, organizing information, and completing their research projects. This can be done through:

- Designing teaching activities to develop students' information processing skills, including data collection, review, and selection
- Setting up midterm progress reports to monitor students' progress and provide feedback, ensuring that each group can complete their work

4. Conduct a achievement sharing event.

- Organize a sharing event where students can showcase their research findings in various formats, such as written reports, oral presentations, exhibitions, models, or websites
- Allow students to present their findings to the entire class, with other students asking questions about their respective research topics

# The Role of Seahorse Rangers



## Preparation, Organization and Promotion

### Preparation and Organization

- Assist in organizing low carbon diet activities (e.g., assisting teachers in collecting information, preparing materials, supplies and equipment)

### Promotion

- Promotion of Low Carbon Diet Activities



# Low Carbon PLS Day

## Toolkit for Secondary School

1. Supplementary Powerpoint
2. Teaching Resources
3. Teaching Materials
4. Poster