



# Urban Microclimate Study

Version 1.5

## A. Planning and Preparation

### Module

Climate Change

### Enquiry Question

Hypothesis 1 : *The temperature of urban inner area is higher than that of its fringe area.*

Enquiry Question 2: *Can town planning improve the air ventilation of an urban area?*

### Key Concepts

Climate Change	Microclimate	Heat Island Effect	Light Intensity
Air Temperature	Relative Humidity	Wind Speed	Wind Direction

### Scope of the Study

Tsuen Wan

### Think About

1. Suggest the most appropriate season, weather condition and time to collect data, justify your answer.
  
  
  
  
  
  
  
  
  
  
2. List the safety risks when conducting urban fieldwork.

## Field Work Plan

1. The base map is showing the study area and the location of each field site.
2. Each group will be arranged to record the climatic data of one field site.
3. With 30 minutes, measure the light intensity, air temperature, relative humidity, wind speed and wind direction every 5 minutes and record the data in Table 1.

## B. Data Collection

Complete the following table.

Primary Data Items	To Examine Hypothesis/ Enquiry Question		Data Collection Method		Equipment Required (Number on the Equipment Checklist)
	1	2	Observation	Measuring	
1. Light Intensity					
2. Air Temperature					
3. Relative Humidity					
4. Wind Speed					
5. Wind Direction					

### Think About

Name the sampling method adopted in fieldwork, and list their advantages.

## Equipment Checklist

Items	Quantity	Checked	Returned
1. Light Meter	x 1	<input type="checkbox"/>	<input type="checkbox"/>
2. Digital Thermohygrometer (Wet Bulb Globe Temperature Meter)	x 1	<input type="checkbox"/>	<input type="checkbox"/>
3. Anemometer	x 1	<input type="checkbox"/>	<input type="checkbox"/>
4. Compass	x 1	<input type="checkbox"/>	<input type="checkbox"/>

Table 1 - climatic data

Items	Time						
	:	:	:	:	:	:	:
1. Light Intensity (LUX)							
2. Air Temperature (°C)							
3. Relative Humidity (%)							
4. Wind Speed (m/s)							
5. Wind Direction (°)							

**Think About**

List the possible errors when collecting data.

**C. Data Processing, Presentation and Analysis**

Draw the most appropriate diagrams with graph paper, to show the data in Table 1.

Hypothesis 1: \_\_\_\_\_

Enquiry Question 2: \_\_\_\_\_

**Think About**

List the merits and demerits of the chosen diagrams.

**D. Interpretation and Conclusion**

1. Does the fieldwork result support the Hypothesis 1: ***The temperature of urban inner area is higher than that of its fringe area?*** Support your conclusion with the collected data and graph.  
(Extended question: List the causes of Heat Island Effect.)

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2. Does the fieldwork result support your answer to the Enquiry Question 2: ***Can town planning improve the air ventilation of an urban area?*** Explain your conclusion with the collected data and graph.  
(Extended question: Base on the data collected, suggest and explain some approaches of town planning which can alleviate the heat island effect in urban area.)

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## E. Evaluation

1. Base on this fieldwork, suggest how to increase the reliability and validity of the data collection.

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2. Suggest a fieldwork in Hong Kong with a theme of weather study, state clearly the hypothesis and data collection arrangement of the fieldwork. .

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### Further Reading



Weather and Climate of  
the Greater Bay Area



Environmental Conservation of  
the Greater Bay Area



Climate Change Strategy  
(Chinese Version Only)