



Opportunities and Risks (Sharp Island)

Enquiry Skills Approach, Version 2.0

A. Planning and Preparation

Module

Opportunities and risks

Enquiry Question

*Volcanism in the past is the major factor in shaping our present landforms.
To what extent can the statement be applied in the field area today?*

Key Concepts

Geological map	Internal processes	Volcanism	Quartz Monzonite
Rhyolite	Denudation	Weathering	Tombolo

Scope of the Study

Sharp Island

Time of the Study

Date: _____ Weather condition: _____

Think About

List the safety risks when conducting geological fieldwork.

B. Data Collection

Data Items

1. Features related to volcanism
2. Rock types
3. Number of swash and backwash
4. Weathering features
5. Diameter of deposit
6. Coastal depositional landforms
7. Coastal landforms modified by humans

Data Collection Method

Primary data

1. Measuring: diameter of deposit
2. Counting: number of swash and backwash
3. Observation: features related to volcanism, rock types, weathering features, coastal depositional landforms, coastal landforms modified by humans

Secondary data

1. Geological map
2. Aerial photo

Sampling Method

_____ sampling

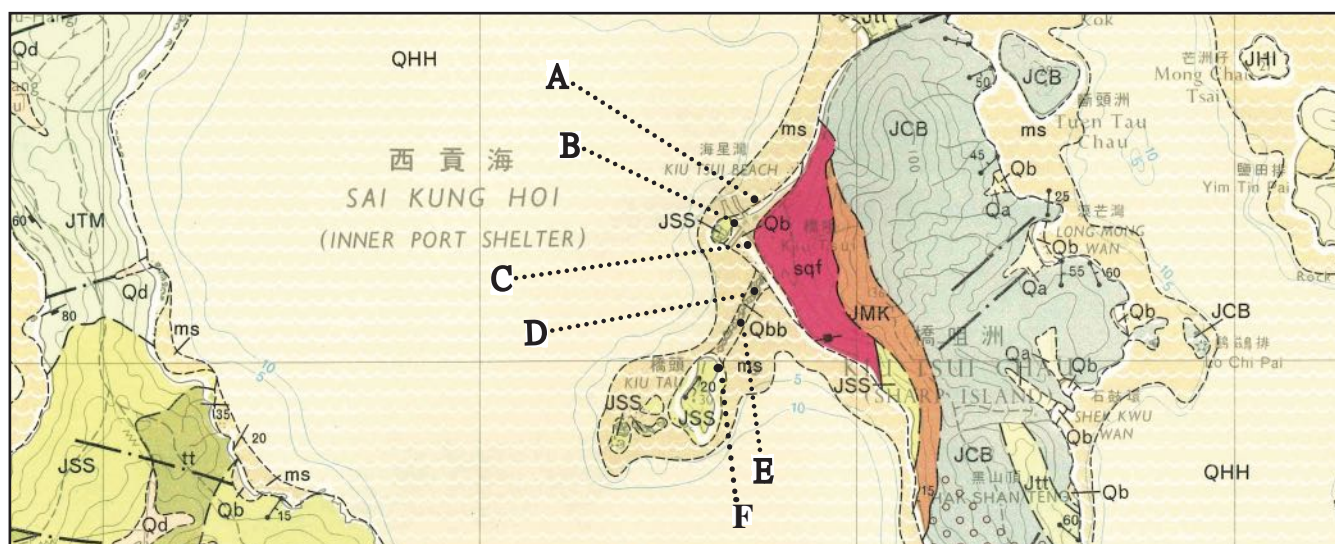
Equipment Checklist

Items	Quantity	Checked	Returned
1. Base map (Individual)	x 1	<input type="checkbox"/>	<input type="checkbox"/>
2. Clipboard (Individual)	x 1	<input type="checkbox"/>	<input type="checkbox"/>
3. Compass (Individual)	x 1	<input type="checkbox"/>	<input type="checkbox"/>
4. Aerial photo (group)	x 1	<input type="checkbox"/>	<input type="checkbox"/>
5. Caliper (group)	x 1	<input type="checkbox"/>	<input type="checkbox"/>
6. Magnifier (group)	x 2	<input type="checkbox"/>	<input type="checkbox"/>

Field Work

Complete the field work at the sites in the map.

Geological Map of Sharp Island



Point A***Features related to volcanism?**

1. Name the coastal landform. According to the surrounding facilities and aerial photo, identify the phenomenon.

related/ not related*Point B**

1. Identify the rock color and minerals with magnifier, and find out its related internal process and rock type.

Rock characteristics	Colour	Minerals		Related internal process	Rock type (name)
		Type	Size		
Rock A				Folding/ Faulting/ Extrusive volcanism/ Intrusive volcanism	

***related/ not related**

2. Small holes are found in some rocks, identify the weathering type and conditions favourable to it.

related/ not related*Point C**

1. The landform at Point C is _____.
2. Count the number of swash and backwash, and describe their strength.
- a. Number of swash: _____ (stronger/ weaker) Number of backwash: _____ (stronger/ weaker)
- b. This is called _____ wave, favourable to _____ landform.
3. The hard strategy to protect the coast is _____, helps _____.

related/ not related*Point D**

1. Identify the rock color and minerals with magnifier, and find out its related internal process and rock type.

Rock characteristics	Colour	Minerals		Related internal process	Rock type (name)
		Type	Size		
Rock A				Folding/ Faulting/ Extrusive volcanism/ Intrusive volcanism	
Rock B				Folding/ Faulting/ Extrusive volcanism/ Intrusive volcanism	
Rock C				Folding/ Faulting/ Extrusive volcanism/ Intrusive volcanism	

***related/ not related**

2. Some boulders look like pineapple buns, identify the weathering type and conditions favourable to it.

***related/ not related**

Point E

1. Name the coastal depositional landform. List the favourable conditions for deposition.

2. Choose a transect across the depositional landform, and a sampling method to measure the diameter of deposit.

a. Sampling method: _____

Diameter of deposit (mm)					Mean diameter (mm)
i.	ii.	iii.	iv.	v.	

b. According to the diameter of deposit, the deposit at PointE is _____.

***related/ not related**

Point F

Observe and describe the characteristics and formation of rocks.

	Characteristics	Formation	Name
Rock 1			
Rock 2			

D. Interpretation and conclusion

Volcanism in the past is the major factor in shaping our present landforms.

To what extent is the statement applied can be applied to the field area today?

Point	Formed by volcanism in the past	Formed by other processes

Opportunities and Risks (Sai Kung Town)

Enquiry Skills Approach, Version 2.0

A. Planning and Preparation

Module

Opportunities and risks

Enquiry Question

Internal processes, such as volcanism, cause hazards, and provide valuable resources for power, industry, farming and tourism, favouring economic activities and bringing wealth to the local resident. Nowadays, in the case of Hong Kong, although we are not located in the hazard-prone area, the internal processes and their related unique geological landscapes have facilitated the establishment of Hong Kong UNESCO Global Geopark.

Volcanism in the past brings opportunities to the present day.
To what extent can the statement be applied to the field area today?

Scope of the Study

Sai Kung Town

Time of the Study

Date: _____ (Weekday/ Weekend) Time: _____

Think About

Is this an appropriate time for fieldwork? Explain your answer.

Field Work Plan

1. Find out all the facilities related to the geopark, and record in Table 1.
2. Find out all the economic activities related to the geopark, and record in Table 1.
3. Count the number of pedestrians passing the assigned checkpoints for 3 minutes, and record in Table 2.
4. Complete the questionnaires for Sai Kung residents and tourists.

B. Planning and Preparation

Data Items

1. Facilities related to the geopark
2. Economic activities related to the geopark
3. Pedestrian flow of Sai Kung residents and tourists
4. Opinion of Sai Kung residents and tourists

Data Collection Method

1. Observation: Facilities and economic activities related to the geopark
2. Counting: Pedestrian flow of Sai Kung residents and tourists
3. Questionnaire: Opinion of Sai Kung residents and tourists

Sampling Method

1. Quota sampling: Questionnaire
2. Systematic sampling: Counting at checkpoints

Equipment Checklist

Items	Quantity	Checked	Returned
1. Base map (Individual)	x 1	<input type="checkbox"/>	<input type="checkbox"/>
2. Clipboard (Individual)	x 1	<input type="checkbox"/>	<input type="checkbox"/>
3. Compass (Individual)	x 1	<input type="checkbox"/>	<input type="checkbox"/>
4. Counter (group)	x 2	<input type="checkbox"/>	<input type="checkbox"/>

Data Recording sheet

Group : _____ Table 1: Facilities and economic activities related to the gepark

Facilities	
Economic activities	

Table 2 - Pedestrians flow record

Count the pedestrian flow at the assigned checkpoint, and record for 3 minutes.

Time : _____

Pedestrian flow	A	B	C	D	Total
Sai Kung residents					
Tourists					

Think About

1. List the possible errors when collecting data.
2. List out the possible reasons why those errors happened.
3. Suggest ways to reduce the above errors.

Table 3. Questionnaire

Complete the questionnaires for Sai Kung town residents, tourists and tourists visited the geopark.

<p>Aim: To investigate the opinion of people after the establishment of Geopark and its related economic, social and environmental development of Sai Kung Town and the nearby area.</p>	
<p>Hello! We are F.____ students from _____ School. We would like to investigate the opinion of Sai Kung residents and tourists on the economic, social and environmental development after the establishment of geopark. Would you mind spending 3 minutes to answer our questions ?</p>	
<p>Q1 : Are you Sai Kung resident, tourist or tourist visited the geopark? <input type="checkbox"/> Sai Kung resident <input type="checkbox"/> tourist <input type="checkbox"/> tourist visited the geopark -> Questions 3 - 5 -> Questions 3 - 5 -> Questions 2 - 5</p>	
<p>Q2 : Why do you visit the geopark? (can choose more than one item) <input type="checkbox"/> attractive landform <input type="checkbox"/> famous site <input type="checkbox"/> escape from busy life <input type="checkbox"/> first visit <input type="checkbox"/> convenient transport <input type="checkbox"/> academic research <input type="checkbox"/> environmental conservation <input type="checkbox"/> other:_____</p>	
<p>Q3: How much have you planned to spend in Sai Kung today? <input type="checkbox"/> less than \$100 <input type="checkbox"/> between \$100 and \$200 <input type="checkbox"/> between \$200 and \$300 <input type="checkbox"/> between \$300 and \$400 <input type="checkbox"/> Over \$400</p>	
<p>Q4 About the impact of the geopark establishment (1 for strongly disagree, 5 for strongly agree)</p> <p>Environmental aspect:</p> <p>a. People have better understanding of the nature 1..... 2..... 3..... 4..... 5..... b. People have better sense in conserving the geological landscape 1..... 2..... 3..... 4..... 5..... c. People are more interested in exploring 1..... 2..... 3..... 4..... 5.....</p> <p>Economic aspect:</p> <p>d. Sai Kung has more job opportunities 1..... 2..... 3..... 4..... 5..... e. Sai Kung restaurants have better income 1..... 2..... 3..... 4..... 5..... f. Sai Kung will have better development 1..... 2..... 3..... 4..... 5.....</p> <p>Social aspect:</p> <p>g. Sai Kung has better reputation 1..... 2..... 3..... 4..... 5..... h. Sai Kung residents has better sense of belonging to the community 1..... 2..... 3..... 4..... 5..... i. Sai Kung has better transport development 1..... 2..... 3..... 4..... 5..... j. Sai Kung has better social facilities 1..... 2..... 3..... 4..... 5.....</p>	
<p>Q5 :Do you have any other opinion on the geopark? <input type="checkbox"/> No. <input type="checkbox"/> Yes, please specify: _____</p>	

C. Data Processing, Presentation and Analysis

Draw the most appropriate diagrams to present the collected data.

Think About

List the merits and demerits of using the chosen diagrams.

D. Interpretation and Conclusion

1. ***Volcanism in the past brings opportunities to the present day*** . To what extent can the statement can be applied to the field area today? Support your conclusion with the collected data and graphs.

E. Evaluation

1. Other than the data collected in this course, suggest other enquiry question, data and information you might need for a fieldwork in the field site. Explain your answer.
