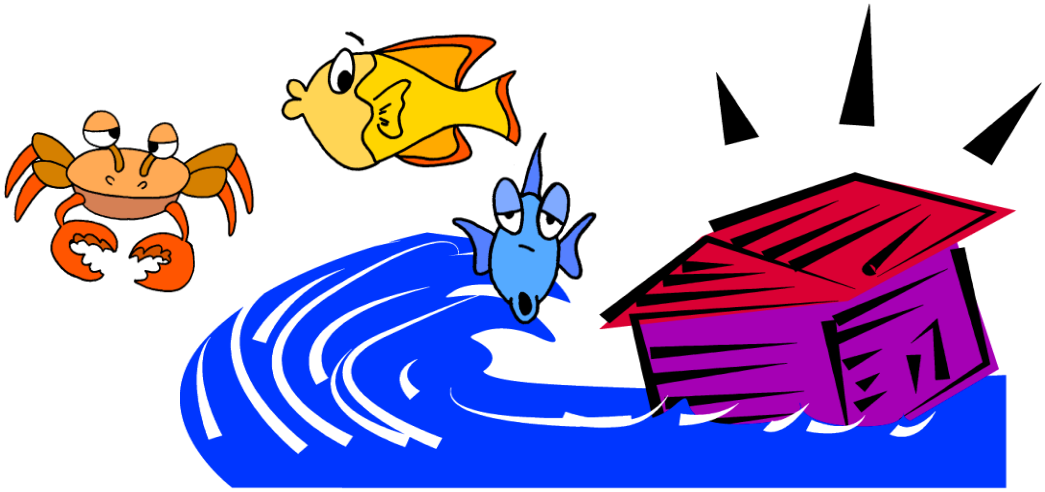
明愛陳震夏郊野學園
香港 長洲 芝麻坑路 39號
電話 Tel：2981 1899
傳真 Fax: 2981 3767

Caritas Chan Chun Ha Field Studies Centre
39 Chi Ma Hang Road, Cheung Chau, Hong Kong
網址 Website：http://www.caritasfsc.edu.hk
電郵 E-mail ：info@caritasfsc.edu.hk

Drifting Classroom



Course Objectives

- Knowledge: 1. To identify the characteristics of river courses and the associated landforms.
  2. To relate the exogenetic fluvial processes with the characteristics of river courses and the associated landforms.
- Skills: 1. To analyze how human factors (river management measures and land use) affect the characteristics of river courses.
  2. To collect field data by appropriate equipment.
- Attitude: 1. To appreciate the natural beauty of rivers.
  2. To respect and treasure the intimate relationship between rivers, ecosystem and settlement.

Name: _____ **Group:** _____

School： _____

Date： _____

New Senior Secondary Geography Curriculum

- ✓ Managing river and coastal environments: A continuing challenge
- ✓ Building a sustainable city—Are environmental conservation and urban development mutually exclusive?

Field Equipment

Activity	Equipment	Quantity
1. Measure the stream width	15m measuring tape	1
2. Measure the stream depth	15m measuring tape	1
	Meter ruler / rope **	1
3. Measure the velocity	Meter ruler	1
	Stop watch	1
	Table tennis ball	1
4. Measure the size of bedload	15m measuring tape	1
	Meter ruler	1
5. Measure the pH value	pH meter	1
6. Measure the conductivity	Conductivity meter	1
7. Measure the temperature	Digital thermometer (extension)	1
	Plastic bottle	1
8. Observe the organisms	Aquarium net	1
	Rubber gloves	1 pair

* A towel is given to dry up the equipment.

** If the water level is up to waist, measure the stream depth by measuring tape and rope.

A. Revision: Characteristics of a typical stream

	Upper Course	Middle Course	Lower Course
1. Gradient	Very Steep / Steep / Gentle	Very Steep / Steep / Gentle	Very Steep / Steep / Gentle
2. Valley Shape	Deep V shape / Becoming Wide V shape / Wide V shape	Deep V shape / Becoming Wide V shape / Wide V shape	Deep V shape / Becoming Wide V shape / Wide V shape
3. Volume	Large / Becoming Large / Smallest	Large / Becoming Large / Smallest	Large / Becoming Large / Smallest
4. Average Velocity	Large / Becoming Large / Smallest	Large / Becoming Large / Smallest	Large / Becoming Large / Smallest
5. Fluvial Processes	Erosion / Transportation / Sedimentation	Erosion / Transportation / Sedimentation	Erosion / Transportation / Sedimentation
6. Characteristics of bedload	Big and Coarse / Becoming Smaller and Smooth / Fine and Smooth	Big and Coarse / Becoming Smaller and Smooth / Fine and Smooth	Big and Coarse / Becoming Smaller and Smooth / Fine and Smooth
7. Landforms			

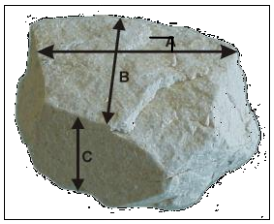
Site _____

B. Record of studied stream

1. **Stream Bed** : rocky / sandy / muddy / weedy
2. **Water Colour** : clear / milky / brown / black
3. **Water Temperature** : _____℃ **Air Temperature** : _____℃
4. **pH Value** : _____
5. **Conductivity** : _____ppm (parts per millennium)
6. **Green Algae** : none / some / plentiful / abundant
7. **Stream Velocity:**

table tennis ball traveling time for 1 m		Stream Velocity (m/sec)	Average X 0.8 = _____m/sec *(round off to 2 decimal places)*
e.g.	20 seconds	1m / 20sec = 0.05m/sec	
1			
2			
3			
4			
5			
Average =		m / sec	

8. **Size of bedload**



Measure the diameter of B axis by a ruler.

No.	1	2	3	4	5	Average
Length of axis (mm)						

Classification of Stream Bedload

Type of Bedload	Diameter
Boulders	>200 mm
Pebbles	50 – 200 mm
Gravel	2 – 50 mm
Sand	0.2 – 2 mm

9. Stream Width: _____m

10. Stream Depth: (0.5m as one interval)

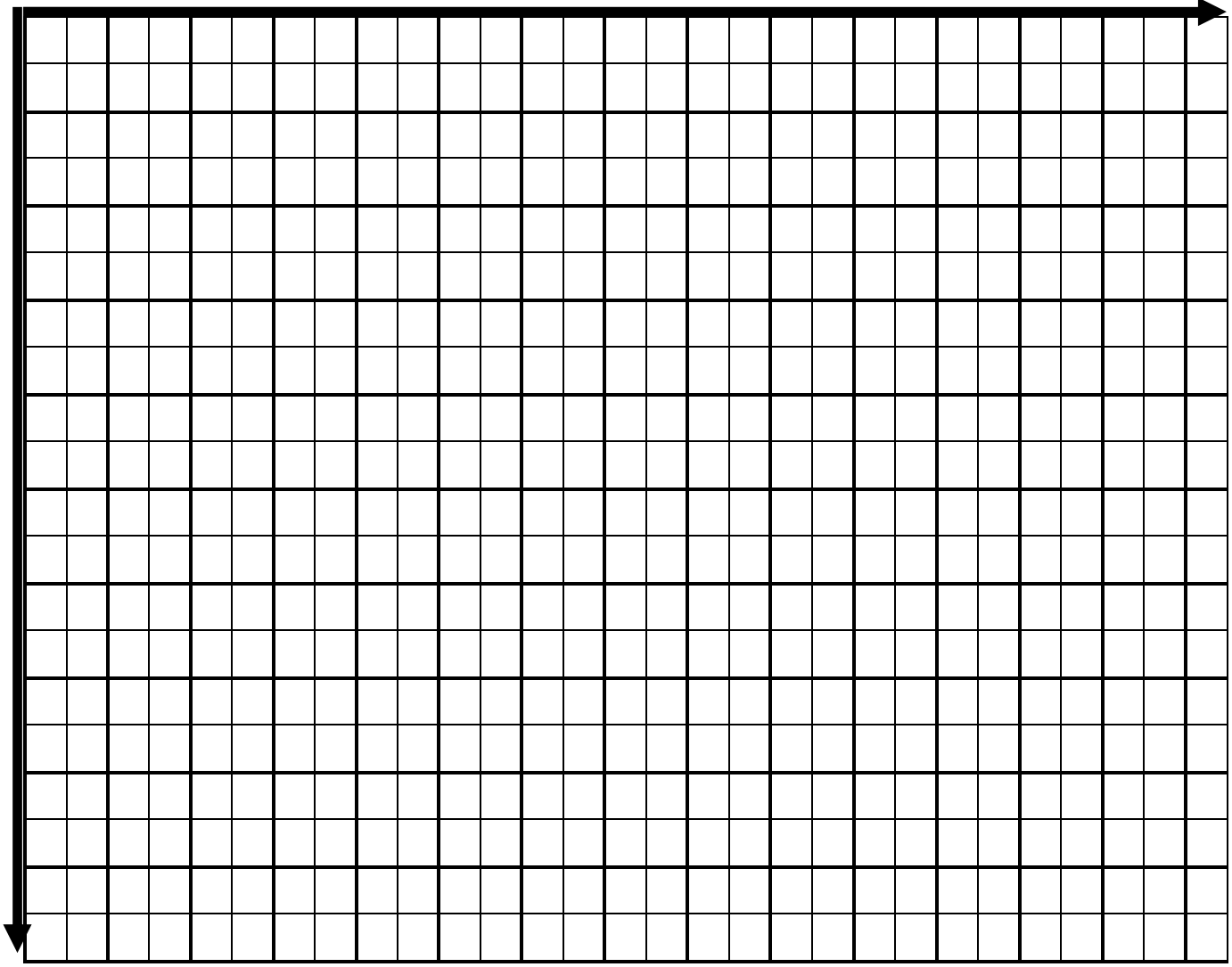
Interval	Depth (cm)	Interval	Depth (cm)	Interval	Depth (cm)	Interval	Depth (cm)	Interval	Depth (cm)
1 (0.0m)		7 (3.0m)		13 (6.0m)		19 (9.0m)		25 (12.0m)	
2 (0.5m)		8 (3.5m)		14 (6.5m)		20 (9.5m)		26 (12.5m)	
3 (1.0m)		9 (4.0m)		15 (7.0m)		21 (10.0m)		27 (13.0m)	
4 (1.5m)		10 (4.5m)		16 (7.5m)		22 (10.5m)		28 (13.5m)	
5 (2.0m)		11 (5.0m)		17 (8.0m)		23 (11.0m)		29 (14.0m)	
6 (2.5m)		12 (5.5m)		18 (8.5m)		24 (11.5m)		30 (14.5m)	
								The Deepest Depth (cm):	

Shape of River Bed

Draw a cross section of the stream：

Site _____

Stream width (m)



Stream depth (cm)

C. Record of Environment

1. River management Measures (✓ where appropriate)

		Site A	Site B	Site C	Site D
a) Channelization					
b) Weir					
c) Concrete Frame with Soil Sacks					
d) Gabion					
e) Monitoring and Warning Signs					
f) Others (if any, please specify)					

2. Land Use (circle the appropriate land use)

Around Site A	Commercial／Residential／Industrial／GCI／Recreational／Agricultural／Abandoned／Vacant／Work in progress
Site B to Site A	Commercial／Residential／Industrial／GCI／Recreational／Agricultural／Abandoned／Vacant／Work in progress
Site C to Site B	Commercial／Residential／Industrial／GCI／Recreational／Agricultural／Abandoned／Vacant／Work in progress
Site D to Site C	Commercial／Residential／Industrial／GCI／Recreational／Agricultural／Abandoned／Vacant／Work in progress

D. Explore the Landforms

Observe the location mark with ★ on the map. List the fluvial landforms that can be found in Rive Silver and Wang Tong respectively?

	River Silver	Wang Tong
Fluvial landforms		

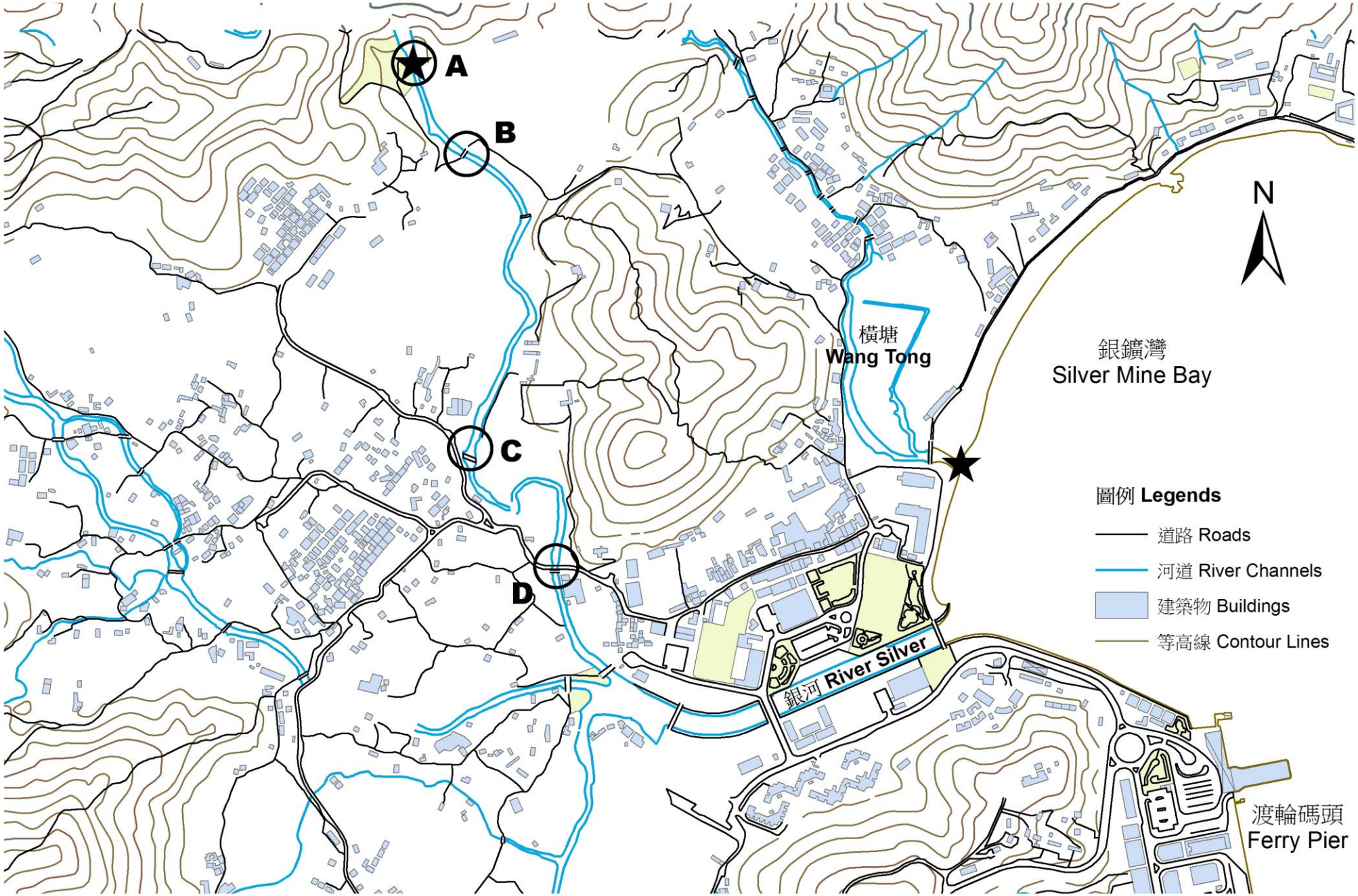
E. Challenging Question

The level of artificialization is different between the lower course of River Silver and Wang Tong. Explain by comparing the human activities at the surrounding area.

	Lower course of River Silver	Lower course of Wang Tong
Artificialization	higher / lower	higher / lower
Human activities at the surrounding area		

Summary of Data

Stream Bed								
Water Colour								
Water Temperature								
Air Temperature								
pH Value								
Conductivity								
Green Algae								
Stream Velocity								
Average Diameter of Bedload								
Stream Width								



漂流教室 Drifting Classroom - 基本圖 Base Map