香港特別行政區政府
教育統籌局

EMB Geography Enhancement Course

Organizing Field Trips in Geography

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Reform Proposal for Education System in Hong Kong

Curriculum design

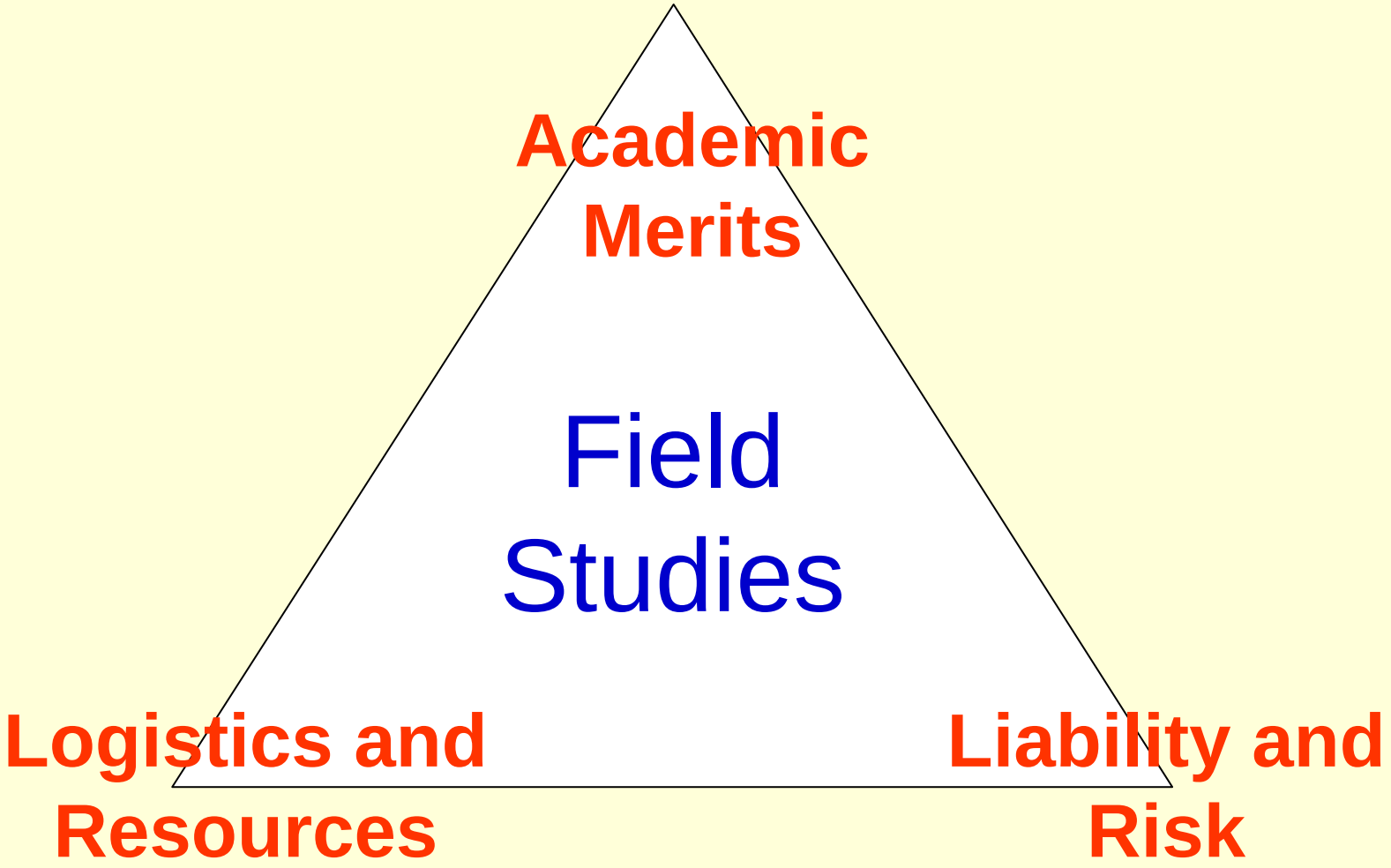
- To encourage cross-curricular and inquiry-based approaches to learning to help students develop self-learning and life-long learning attitude.

[EMB, Review of Academic Structure of Senior Secondary Education, Executive Summary, 2004]

Workshop on Field Studies

- The Essence and Modes of Field Studies
- Facilitating Field Studies in Hong Kong
- PBL – A New Mode of Field Studies
- The St Mary Church School Experience

Balancing the Triangle



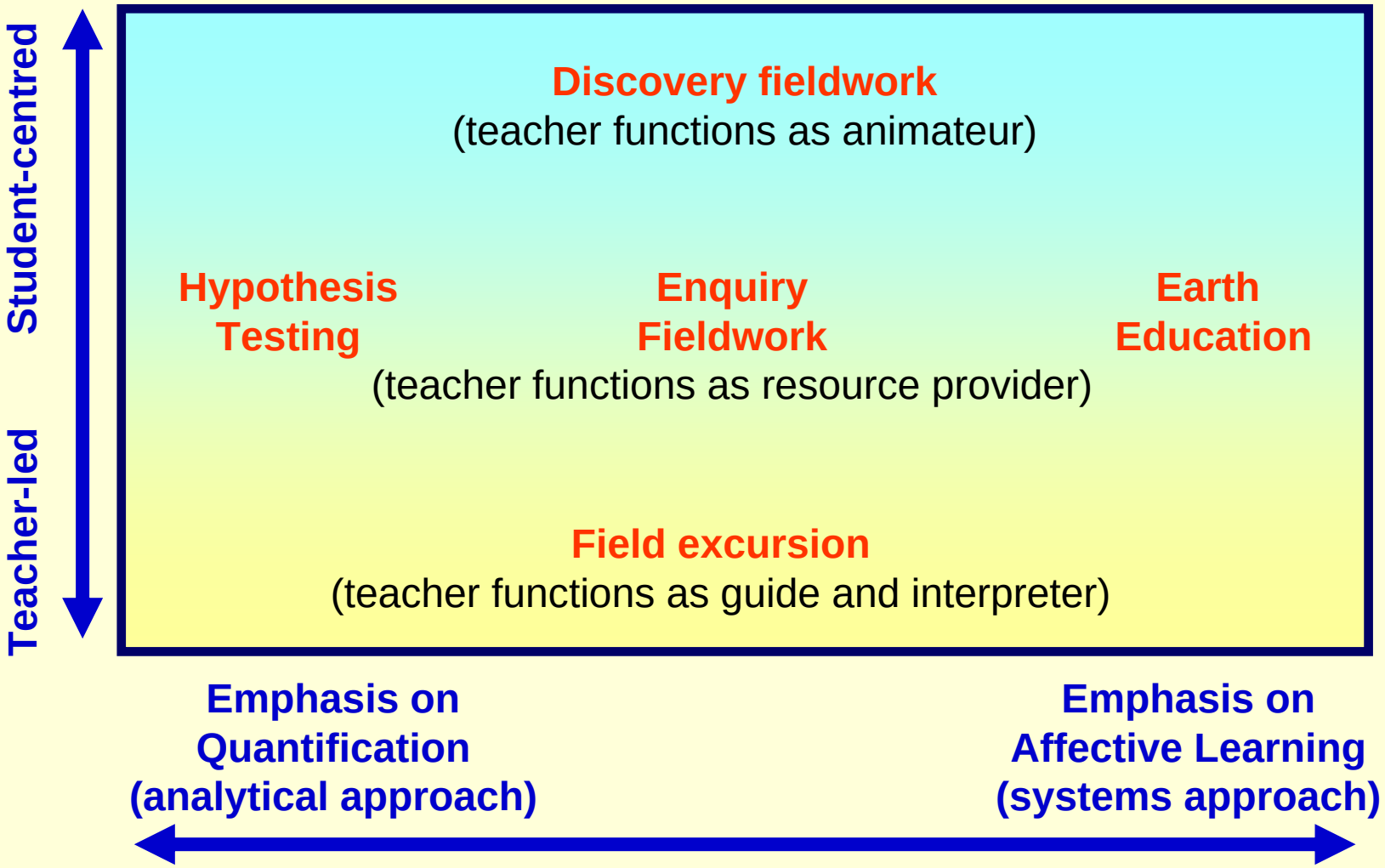
Why taking students to the field?

- Illustrate taught concepts with real samples
- Enable students to attain a more complete picture
- Develop an appreciation of the complexities of real-life cases
    - cross-disciplinary nature
    - lack of definitive solutions
- Best venue to train observing and describing skills
- Students enjoy more, learn better
- Teachers enjoy more, teach better

The intangible merits

- To be challenged physically
- Opportunity to work and live collaboratively
- Learn to appreciation of nature and cultural heritage
- Learn to become a responsible member or a team and of Society

Some Fieldwork Approaches



After Lambert & Balderstone (2000) Learning to Teach Geography in the Secondary School, London: Routledge Falmer

A comparison of two approaches

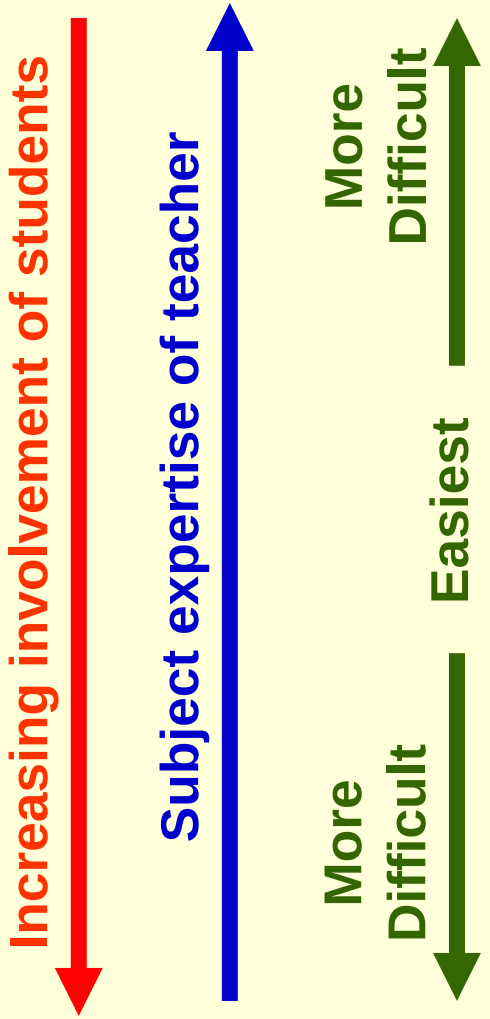
(after Principia Cybernetica Project)

Analytical approach	Systems approach
concentrates on the values of individual elements	concentrates on the interaction amount elements
studies the nature of interaction	studies the effects of interactions
emphasizes the precision of details; avoids overall perspective	emphasizes global perception; fuzzy details
modifies one variable at a time	modifies groups of variables simultaneously
independent of duration of time; phenomena considered reversible.	integrates duration of time and irreversibility
leads to discipline-specific education	leads to multidisciplinary education

Field studies must essentially employ the systems approach.

Modes of Field Studies

- Teacher-centered, using field as classroom (no prior lecturing)
- Teacher-centered, integrate field learning into classroom teaching
- Teacher-centered, conducting canned exercises in field
- Student-centered, undertaking field project prescribed by teacher
- Student-centered, undertaking field project designed by themselves



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Field Excursions for Geography

- Slopes, Weathering & Badlands
- Faults & Folds
- River Features
- Beaches, Coastal Landforms
- Rocks & Minerals
- Urban and rural development
- Environment, resources and social issues

Slopes and highland streams: Nam Chung, Luk Keng, Wu Kau Teng area

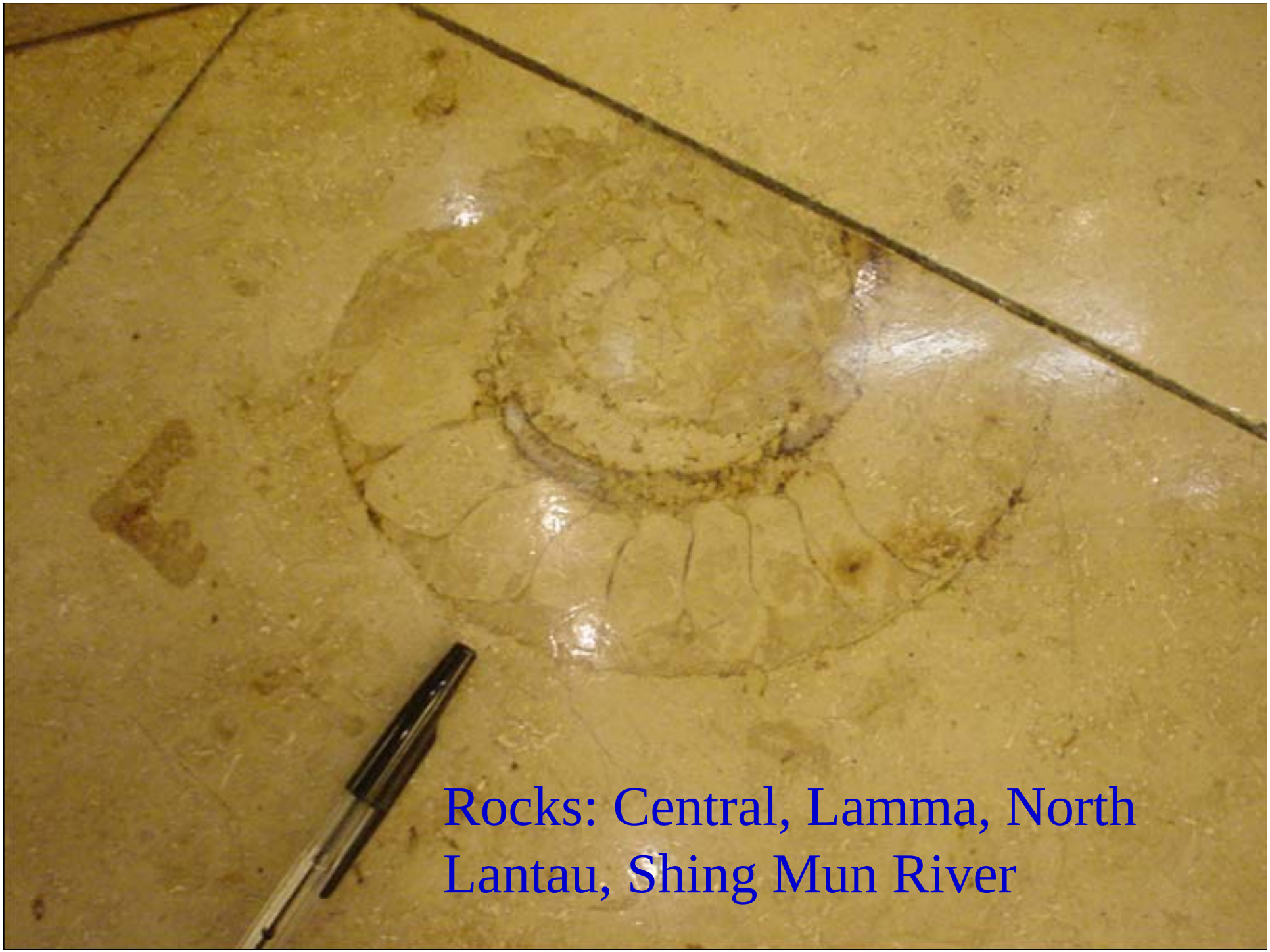

Ping Fung Shan (escarpment)


Nam Chung (wetland habitat)


Hok Dau (entrenched meander)


Wu Kau Teng (raised terrace)

Faults & Folds: Ma Shi Chau, Lai Chi Chong


Rocks: Central, Lamma, North
Lantau, Shing Mun River

Field Excursions in HK

- Slopes and highland streams: Lantau, Nam Chung
- Faults & Folds: Ma Shi Chau, Lai Chi Chong
- River features: No good natural river systems, much to see about river training
- Beach & coast: numerous, Sai Kung, Long Ke, raised beach
- Rocks: Central, Lamma Is, North Lantau, Shing Mun River
- Weathering: Cheung Chau, Lamma Is., Ninepins

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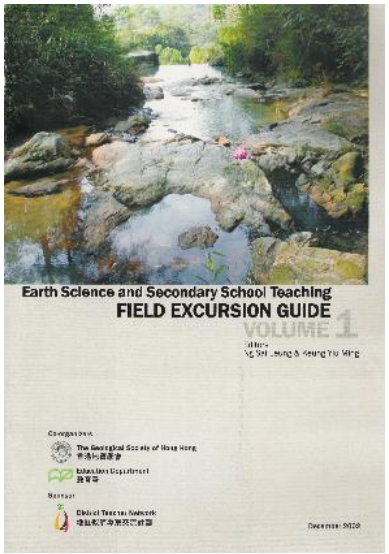


Common Field Problems

- Variation in students' level and ability
- Dominance by few bright students
- Lack of interaction among students
- Constrained thinking in set exercises
- Lack of opportunities to observe and reason
- Solution-driven (analytical approach)

**Advantages of field teaching not fully utilised*

Example: Description of Rocks

How do we normally do it?

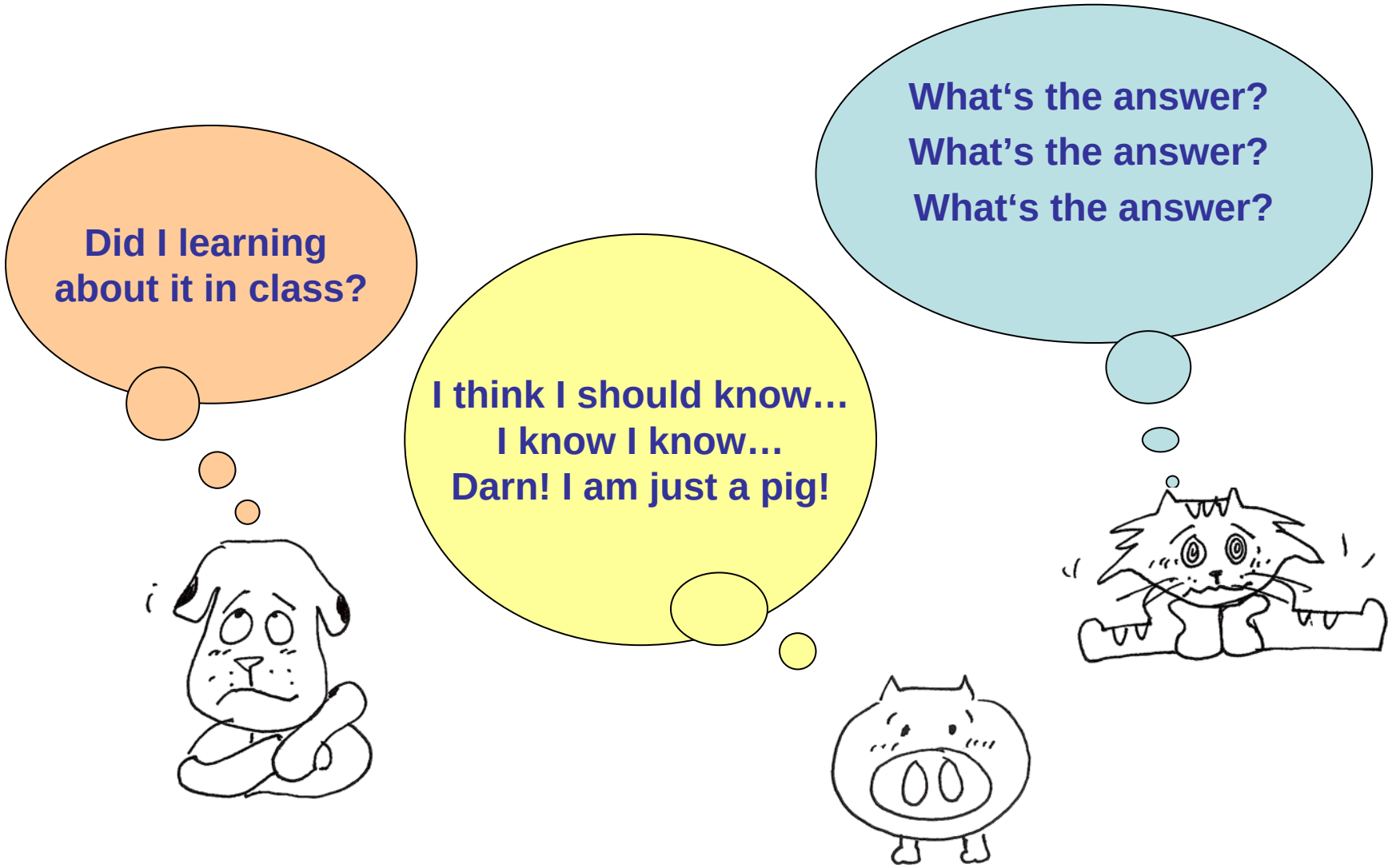
- What are the major minerals in the rock?
- What kind of rock is it, igneous, sedimentary or metamorphic?
- What is the name of the rock?

Example: Weathering

How do we normally do it?

- What do you call this kind of weathering feature?
- How does it happen?
- What kind of weathering is it? Chemical or physical?

What are in the student's mind?



Can these practices be enhanced in the field exercise?

- Observe
- Describe
- Infer
- Hypothesize
- Propose investigation methods

Redesigning the questions!!

~~What are the major minerals in the rock?~~

WHAT can you describe about the rock? For example, colour is obviously one. WHAT ELSE?

~~What kind of rock is it, igneous, sedimentary or metamorphic?~~

How may you measure these properties?

~~What is the name of the rock?~~

What does each of the properties tell you about the rock?

WHAT can you describe about the properties of the rocks? For example, colour is obviously one. WHAT ELSE? CAN YOU LIST AT LEAST 9 OTHERS readily determined properties? What does each of the properties tell us about the rock? (Group)

Property	How to measure	What does it say about the rock
Colour	*Eye-ball*	*Composition? Minerals? Freshness?*

~~What do we call this kind of weathering feature?~~

Describe this exposure. What are the most remarkable characteristics?

~~How does it happen?~~

What caused the distinctly different colours in the rock?

~~What kind of weathering is it? Chemical or physical?~~

Why did oxidation occur at those particular locations?

**Technical terms vs. Generic terms*

How did rectangular joint intersections produce rounded core stone?

Guided thinking vs. Constrained thinking

Nature of weathering process

↓

Conditions for weathering

↓

How can reaction be sped up?

↓

Gibbs free energy

(surface area/volume ratio)

↓

Weathering spheroids

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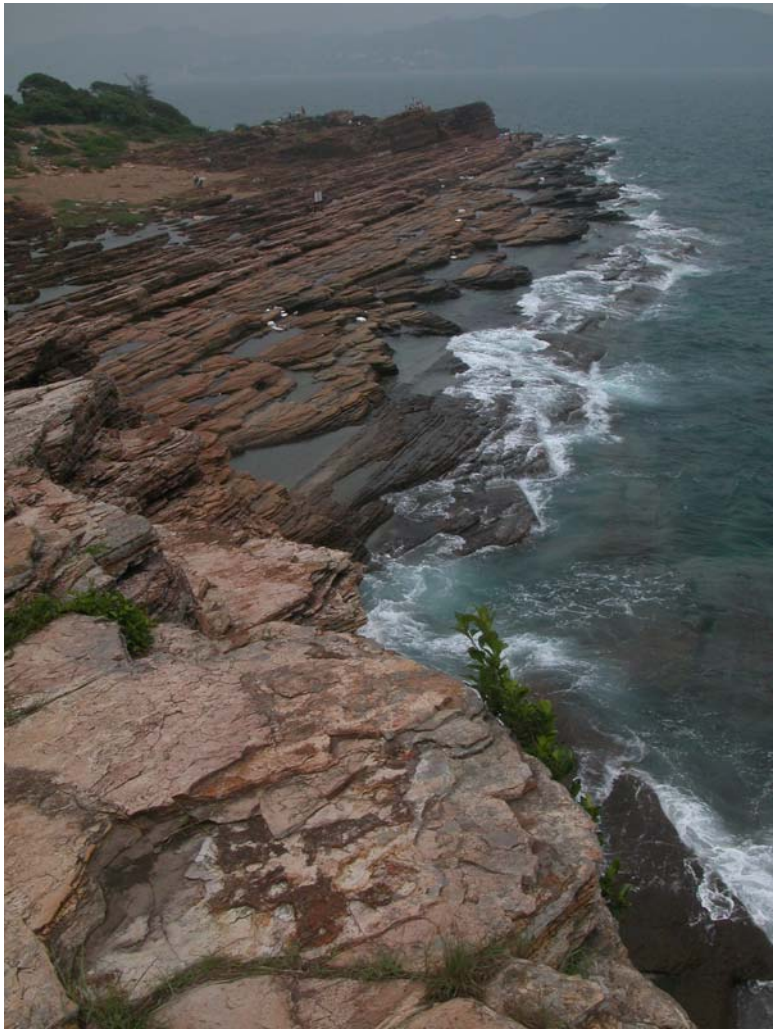
The analytical approach

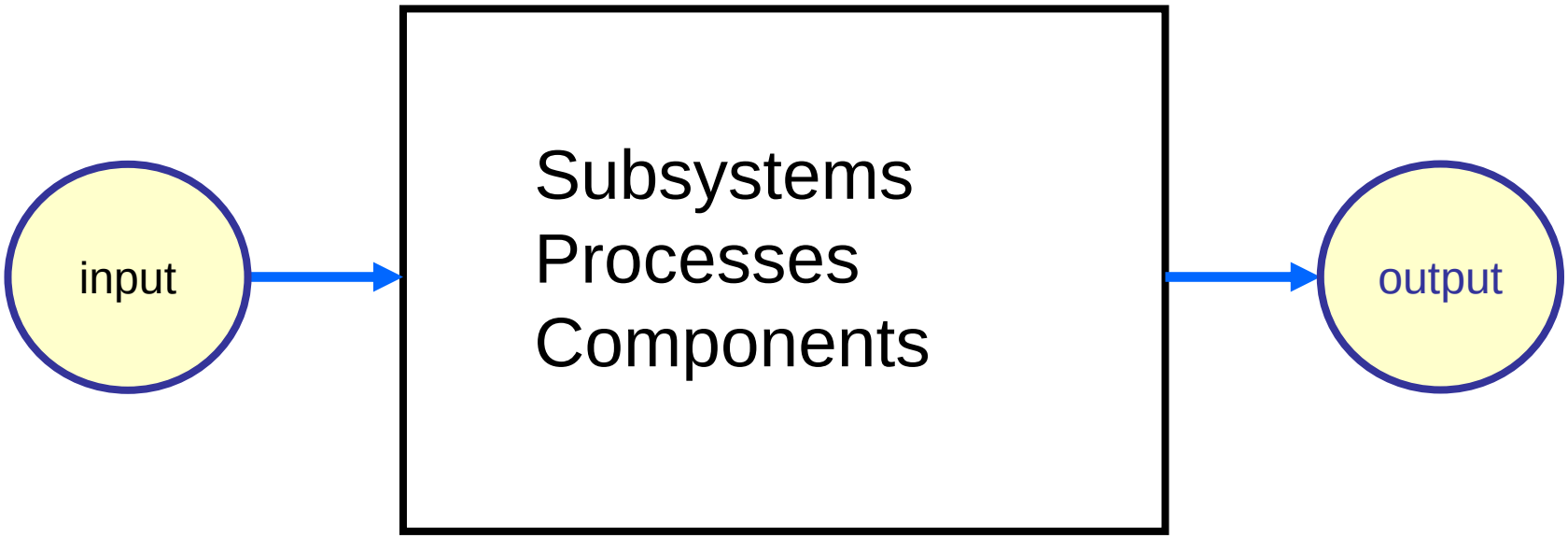
How did the wave-cut platform form?

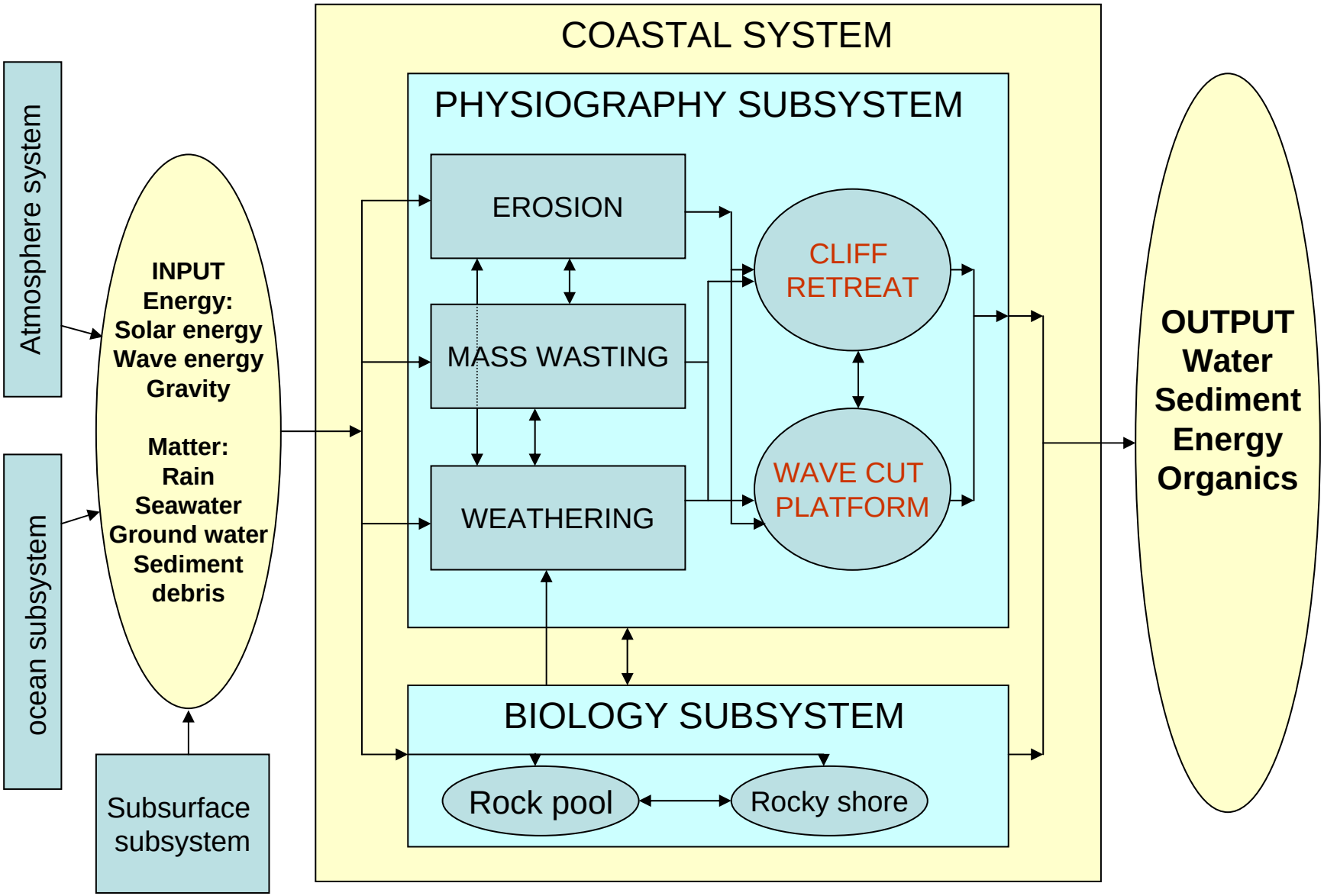
- Erosion
- Hydraulic action by waves
- Abrasion by sediments
- …..



The systems approach

Considering the coastal landform as an open system, use a system diagram to depict the processes and elements of this system




COASTAL SYSTEM
PHYSIOGRAPHY SUBSYSTEM
EROSION
MASS WASTING
WEATHERING
CLIFF RETREAT
WAVE CUT PLATFORM
BIOLOGY SUBSYSTEM
Rock pool
Rocky shore
Atmosphere system
ocean subsystem
Subsurface subsystem
INPUT
Energy:
Solar energy
Wave energy
Gravity
Matter:
Rain
Seawater
Ground water
Sediment
debris
OUTPUT
Water
Sediment
Energy
Organics

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