

Using Mobile Learning Tool  
to Conduct Field Study in  
Science (S1-3) in “Hong Kong  
Wetland Park” - Introduction  
of L&T resources

在「香港濕地公園」利用流動學習  
工具進行科學（中一至中三）實地  
考察活動 - 學與教資源介紹

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# Curriculum on Biodiversity

P1-3

## General Studies

### Classification

- Invertebrates vs Vertebrates
- Flowering plants vs Non-flowering plants
- Distinct characteristics of animals (feather, hair, fins,...)

### Biodiversity

- Natural landscapes (e.g. geoparks, wetlands)
- Common Animals and plants in Hong Kong
- Conservation of natural environment

P4-6

## General Studies

### Classification

- Classification of major vertebrate groups (Fish, Amphibian, Reptile, Bird, Mammal)

### Biodiversity

- Natural habitats
- Interdependence of living things and the environment (e.g. food chain)
- Human Impact on the environment
- Endangered species

S1-3

## Science (S1-3)

### Classification

- Classification of major vertebrate groups according to their key features (Fish, Amphibian, Reptile, Bird, Mammal)
- Construct simply key for identification of living things

### Biodiversity

- The importance of biodiversity to the sustainable development
- Effect of human activities leading to the reduction of biodiversity
- Endangered species
- Conservation

S4-6

## Biology (S4-6)

### Classification

- Six kingdoms
- Three domains

### Biodiversity and Ecology

- Major ecosystem types (Freshwater stream, rocky shore, mangrove, grassland and woodland)
- Physical & biological factors in habitats and their effects (Interdependent of living things and the environment, food chain, food web)
- Impact of human activities to the ecosystem

Primary Level

Secondary Level

# Science (S1-3) Outdoor Learning at Hong Kong Wetland Park

## Learning and Teaching resources

- **EDB** (Science Education Section) + **AFCD** (Hong Kong Wetland Park) + **CUHK** (CLST)
- To provide a handy resources to conduct field study in Hong Kong Wetland Park
- To facilitate Self-Directed Learning
- Complement to the Science (S1-3) curriculum – Unit 3 (Looking at Living Things)
- Both English and Chinese version
- Tryout:
  - Professional Development Programme
  - QESOSA Tong Kwok Wah Secondary School
  - Queen Elizabeth School
  - Ju Ching Chu Secondary School (Yuen Long)



# EduVenture

- Orienteering mode → increase students' learning interest and motivation
- Different types of questions
  - Multiple choice
  - Multiple choice and multiple answers
  - Fill in the blank
  - Photo taking
  - Table
  - Voice recording.....
- Description
  - Word
  - Voice





# The design


- To explore the nature
- To make good use of the Wetland Parks' Exhibitions
- Learning Activities
  - To observe
  - To think

**Dragonfly (蜻蜓) and Damselfly (豆娘)**



Dragonfly (蜻蜓) 昆虫 昆虫      Damselfly (豆娘) 昆虫 昆虫

Q: Observe a dragonfly and a damselfly in the Hong Kong Wetland Park. State one difference of their wings.



Q: Find a Beach Naupaka along the Stream Walk and observe their leaves. There are white lines on some of the leaves. What is the cause of these white lines?

- A. Leaves being infected (感染) by fungi
- B. Eggs laid by insects on the leaves
- C. Excretory wastes (排泄物) of other living organisms
- D. Tracks (痕迹) made by insects when they feed on the leaves

**Fiddler crabs (招潮蟹)**



Fiddler crabs (招潮蟹) wave their big claws during low tides as if they are welcoming the tides. Male fiddler crabs have a pair of claws with different sizes, while female have a pair of small claws.

Q: Can you find any fiddler crab on the mudflat? Where can you find the fiddler crab on the mudflat?

Q: What are the uses of the large claw (大螯) of the male fiddler crabs?



Q: Eyes of crocodiles are located on the top of their heads. How does this feature benefit their living in the river?

Q: The field of vision of crocodiles is almost 270 degree. How does this feature benefit their living in the river?

# The design

- To explore the nature
- To make good use of the Wetland Parks' Exhibitions
- Learning Activities
  - To observe
  - To think
  - To record

Q: Count and record the number of animals that you can find around the 'Mangrove Boardwalk' in 3 minutes and indicate where the animals were found (Leaves / Trunks or branches / Roots / Mudflat / Sky).

	Quantity	Places where they were found
Fiddler crab (招潮蟹)	<input type="text"/>	<input type="text"/>
Mudskipper (彈塗魚)	<input type="text"/>	<input type="text"/>
Sesarmid crab (相手蟹)	<input type="text"/>	<input type="text"/>
Birds 鳥類	<input type="text"/>	<input type="text"/>
Insect 昆蟲	<input type="text"/>	<input type="text"/>
Others 其他	<input type="text"/>	<input type="text"/>

# The design

- To explore the nature
- To make good use of the Wetland Parks' Exhibitions
- Learning Activities
  - To observe
  - To think
  - To record
  - To have self-reflection (Value Education)

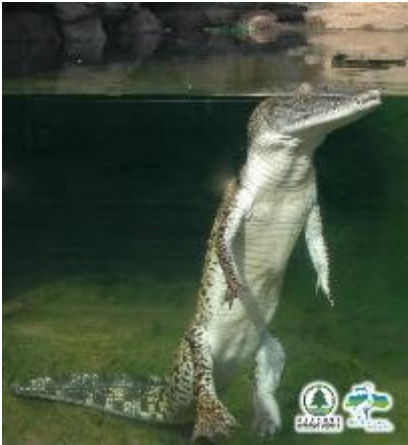
Q: What is the importance of freshwater stream to human? Why we need to conserve them? Record your view/opinion with a sound clip (less than 1 minute). (最長錄音時間為10分鐘)





# To discover the Beauty of Nature

# Conservation





# Self-Directed Learning

- Introduction to
  - the characteristics of the environment

## 紅樹林



紅樹是生長於熱帶和亞熱帶河口鹹淡水交界及隱蔽海岸的潮間帶（漲潮時海水漲至最高、退潮時海水退至最低之間的海岸）的植物。紅樹中文名稱的由來，可能是由於木欖的樹皮及花等部分因為有大量的丹寧酸而呈現紅色，所以稱它們為「紅樹」，馬來西亞一帶的人會利用木欖的樹汁提煉成紅色的染料用來染布。漸漸我們都統稱棲息於相似生境的及有特別適應該環境能力的植物為紅樹。

## 紅樹

Q: 請找出兩種不同品種的紅樹，並以照片記錄下來。

(紅樹品種1)

## 溪畔漫遊徑



山巒起伏的香港共有數百條河溪，溪水沿陡峭的山溝流向河口。溪流的源頭位於高嶺，上游水流湍急，沿著山間蜿蜒而流，逐漸減緩。這些天然河溪不單是各種野生動植物的理想生境，更具備重要的生態功能及高景觀價值。

Q: 請用以下形容詞來比較河溪上游和下游的特徵。

較窄 / 較闊  
較小 / 較大  
較快 / 較慢  
較混濁 / 較清澈  
較陡峭 / 較平坦

# Self-Directed Learning

- Introduction to
  - the characteristics of the environment
  - the classification of organisms

## 水生植物

部分或全部生命週期需要在水中或水面進行的植物稱為水生植物，這包括完全浸沒於水中及紮根於水分飽和土壤的植物。它們生存於淡水、鹹淡水及海洋中，是所有濕地生態系統不可或缺的部分。水生植物可按形態大致分為四個類別：

### 漂浮植物

— 整株植物漂浮於水面上，隨水流流動

### 沉水植物

— 整株植物生長在水中。部分種類只有在開花時，花及部分枝條才露出水面

### 浮葉植物

— 植物的葉片浮在水面上，由長長的葉柄把葉片和長在泥土中的地下莖和根連接着

### 挺水植物

— 植物的根部生長在泥土中，莖和葉柄較為堅硬，多為中空，可支撐葉片挺出水面

Q: 找尋一棵挺水植物，並拍照記錄。



相簿



相機

# Self-Directed Learning

- Introduction to
  - the characteristics of the environment
  - the classification of organisms
  - the features of an organism

草海桐



草海桐是一種常見於沙灘岸邊濕地公園的香港原生植物。沙灘上的沙粒疏水性強，植物很難吸收水份。草海桐的葉面有臘質，有助減少水份流失，其葉肉質比較厚，可以儲水，因此能適應於沙灘等地方生長。

## 紅樹如何適應環境？

紅樹生長在環境惡劣的潮間帶。試找出紅樹適應這種惡劣環境的方法，以照片記錄下來，並以簡單文字說明紅樹如何適應環境。

Q: 紅樹由於處於潮間帶，難以吸收水分。紅樹的樹葉如何防止水分流失？



(文字描述)

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# Did students learnt from the field study?

## 演替之路



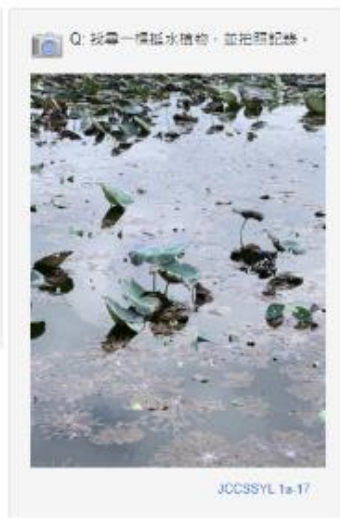
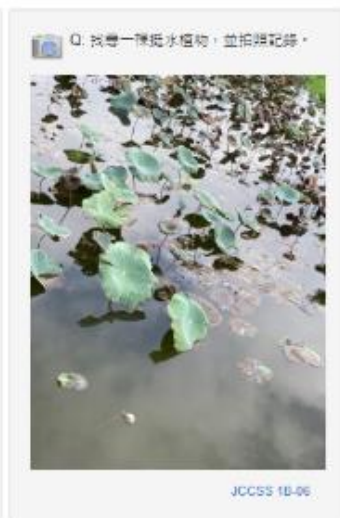
Individual responses

荷花	睡蓮
顏色比較粉	顏色比較紅
比較頓	比較尖

其他答案 🧑🏫



# Did students learnt from the field study?



Q: 保護濕地十分重要，我們每人都需為保育出一分力。試以錄音方式（30秒為限）作出承諾，說明我們應如何保護濕地。

0:00 / 0:10

jccssyl 1D-29

Q: 保護濕地十分重要，我們每人都需為保育出一分力。試以錄音方式（30秒為限）作出承諾，說明我們應如何保護濕地。

0:00 / 0:38

JCCSSYL 1D01\_luke

Q: 保護濕地十分重要，我們每人都需為保育出一分力。試以錄音方式（30秒為限）作出承諾，說明我們應如何保護濕地。

0:00 / 0:28

jcc1B14

Q: 鱷魚的眼睛長在頭上，這特徵對牠們在河流裏生活有什麼好處？

A: 能看清水面，，有利於捕食，躲避危險

jcc1B14

Q: 鱷魚的眼睛長在頭上，這特徵對牠們在河流裏生活有什麼好處？

A: 见到水面上发生的事情

jccssyl 1D-29

Q: 鱷魚的眼睛長在頭上，這特徵對牠們在河流裏生活有什麼好處？

A: 能看清水面，，有利於捕食，躲避危險

jcc1B14

Q: 鱷魚的眼睛長在頭上，這特徵對牠們在河流裏生活有什麼好處？

A: 可以保護眼睛

JCCSSYL 1A 16

Individual Question



# Answers

## 紅樹如何適應環境？

紅樹生長在環境惡劣的潮間帶。試找出紅樹適應這種惡劣環境的方法，以照片記錄下來，並以簡單文字說明紅樹如何適應環境。

Q2. 紅樹由於處於潮間帶，難以吸收水分。紅樹的樹葉如何防止水分流失？



〔文字描述〕紅樹的樹葉有蠟質及葉肉較厚

〔照片記錄〕顯示厚樹葉及葉面蠟質

Q3. 潮間帶的泥土鬆軟。紅樹的根有什麼特徵，可以令紅樹不易被潮水沖走？

〔文字描述〕很多紅樹有堅固的根部結構，例如：板根、升高根和纜狀根

〔照片記錄〕顯示木櫟的板根、秋茄的支柱根

## 紅樹林的動物

紅樹林裏居住了很多不同種類的動物，於樹葉、樹枝、樹根或泥面上皆可找到牠們。

Q6. 試以三分鐘為時限，統計及紀錄你在紅樹林浮橋找到的生物數量，並標示發現動物的地方（葉面／樹枝／樹根／泥面／天空）。

動物	數量	發現位置
招潮蟹		泥面
彈塗魚		泥面
相手蟹		泥面／樹根
鳥類		樹枝／天空
昆蟲		葉面／樹枝／天空
其他		葉面／樹枝／樹根／泥面

Q7. 有甚麼環境／天氣因素令我們看不到紅樹林的動物？

潮漲／天氣寒冷

試仔細觀察彈塗魚。



Q11. 彈塗魚的胸鰭進化成近似「手」的形狀，這對牠在泥灘上生活有甚麼好處？

方便牠們在泥灘上爬行及跳躍，以便找尋食物及逃避敵人。

Q12. 彈塗魚的眼睛長在頭上，這對牠在泥灘上生活有甚麼好處？

方便牠們觀察來自上空的敵人