



香港歷史博物館
中國香港世界地質公園
漁農自然護理署

Hong Kong Museum of History
Hong Kong Global Geopark of China
Agriculture, Fisheries and
Conservation Department



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「香港故事」 - 自然生態環境展區工作紙 Worksheet of "The Hong Kong Story" - The Natural Environment



香港歷史博物館
Hong Kong Museum of History



學生在參觀展覽後能夠:

By the end of this visit, students will be able to:

1. 描述香港的地質年代和了解地質時間概念和地質年代表
Describe the geological age of Hong Kong and understand concept of geological time and its scale
2. 在香港地圖上標示出展覽岩石的分佈
Map out the distribution of the displayed rocks in Hong Kong
3. 描述化石和岩石的形成
Describe the formation of fossils and rocks
4. 分辨三種主要的岩石
Identify three major kinds of rocks
5. 描述林地、河溪和濕地的生境
Describe the habitats in woodland, stream and wetland
6. 用圖示闡明食物鏈和生態系統
Illustrate the food chain and ecosystem



地球的時間 The Earth Time

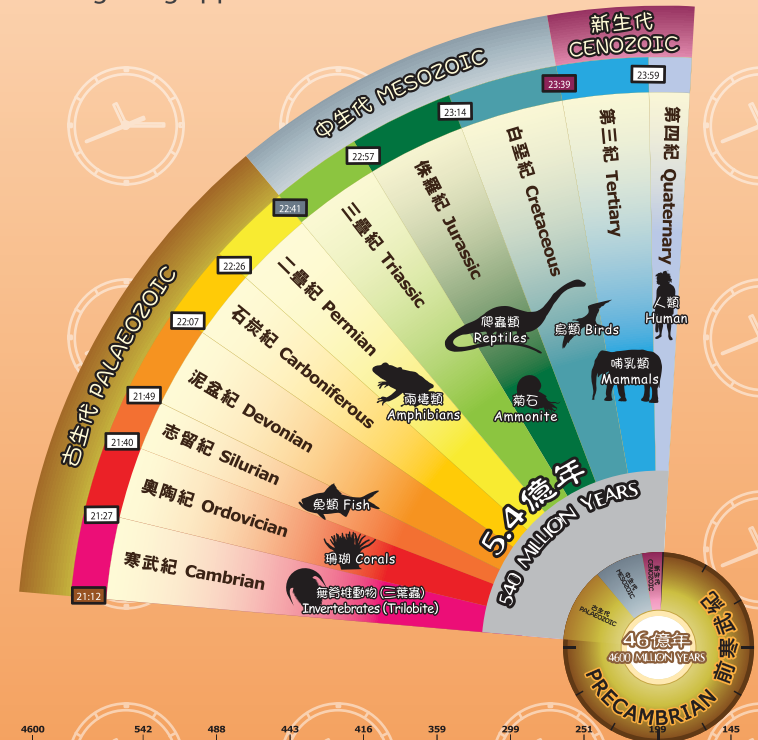
試往展區一看看香港地質的歷史，然後解答下列問題：
Please explore the geological history of Hong Kong in Gallery 1 and answer the following questions:



1. 地球究竟多少歲了?
How old is our planet Earth?



2. 請在時鐘上圈出香港最古老和最年輕的岩石出現的時間。
Please circle the time when the oldest rock and the youngest rock of Hong Kong appeared.



3. 倘若把地球歷史當作一小時計算，香港只是過去 才形成的。
If we compress the Earth's history into one hour, the creation of Hong Kong falls in .



地質時代表 Geological Time Scale



4. 請將展覽中的岩石和化石按地質年代排列。
Please fill in the name of rocks and fossils according to their geological ages.

地質年代 Geological Age	古生代 Paleozoic				中生代 Mesozoic		新生代 Cenozoic	
	泥盆紀 Devonian	石炭紀 Carboniferous	二疊紀 Permian	三疊紀 Triassic	侏羅紀 Jurassic	白堊紀 Cretaceous	第三紀 Tertiary	第四紀 Quaternary
環境 Environment	沿岸河谷平原 Coastal River Plain	熱帶海濱和 沿岸沼澤 Tropical Seashores & Swamps	淺海 Shallow Sea	香港沒有此地層出現 No outcrop is found in Hong Kong	火山 Volcanoes	荒漠 Desert	淺水湖泊 Shallow Lake	地殼隆起和侵蝕 Uplift and Erosion
岩石 Rock	a.	b.	粉砂岩 Siltstone / 砂岩 Sandstone / 細礫岩 Fine Conglomerate		c.	d.	e.	只有表土沉積 Superficial deposits only
岩石的位置 Location of Rock	黃竹角咀 Bluff Head	f.	g.		h.	赤洲 Port Island	i.	
化石 Fossil	j.	無錫亞鱗木 <i>Sublepidodendron wusibense</i> / 貴州珊瑚 <i>Kueichouphyllum sp.</i> / 袁氏珊瑚 <i>Yuanophyllum sp.</i> / 布蘭納菊石 <i>Branneroceras sp.</i>	k.		l.	m.	n.	

現代 Present
(百萬年前
Million years ago)



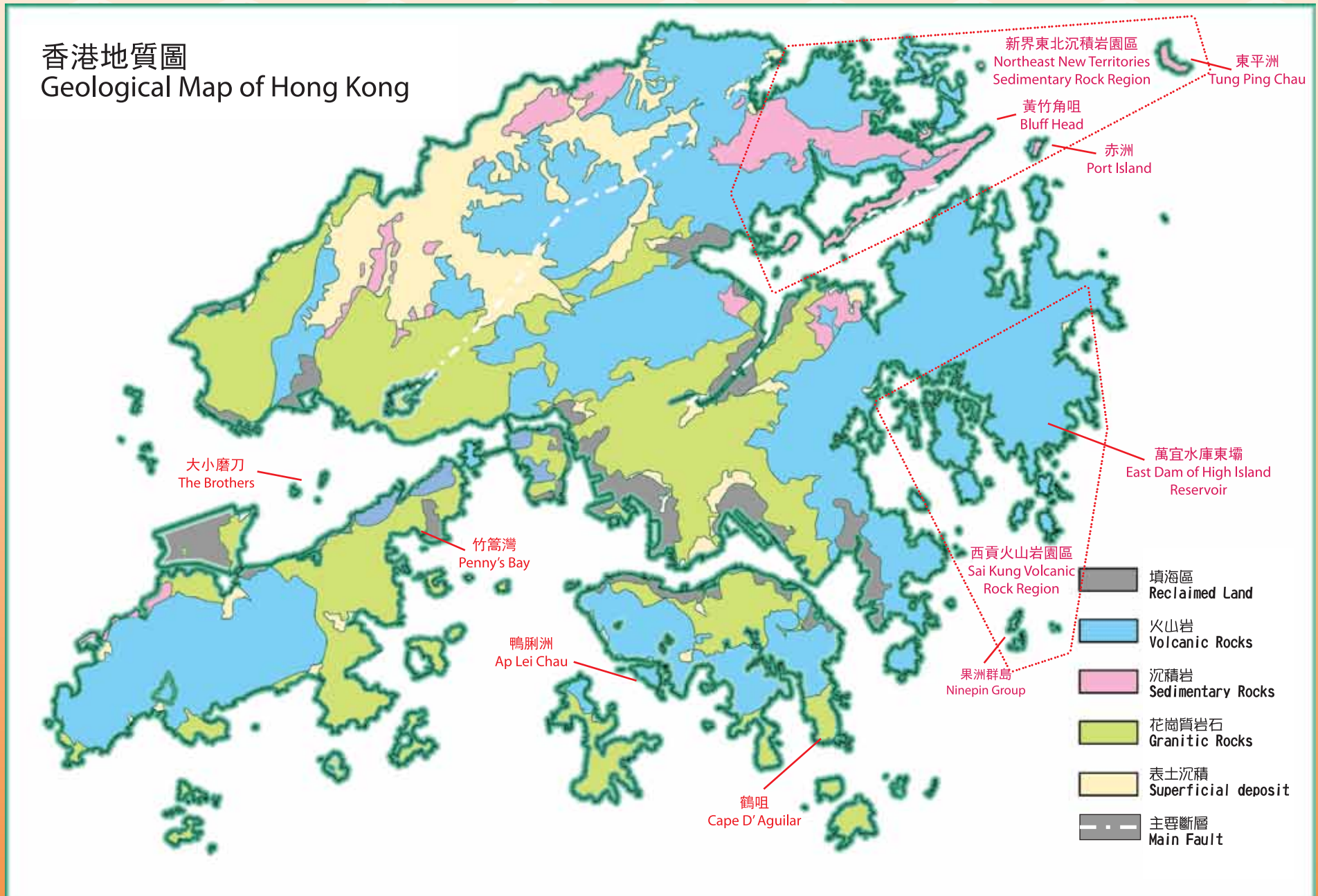
你的簡易香港地質圖

Your Geological Map of Hong Kong

5.

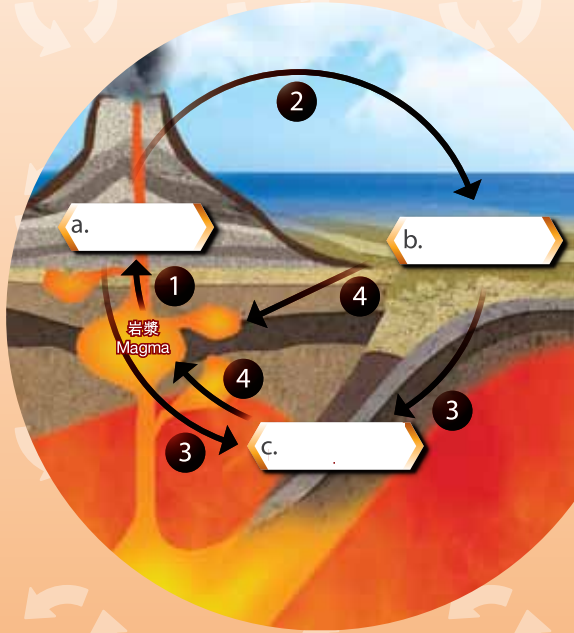
請在以下的地圖上圈出展覽區內展示的岩石的位置。

Please circle the location of rocks on display in the gallery.



岩石循環 Rock Cycle

6. 請填上岩石的種類。
Please fill in the rock types.



1. 岩漿冷卻及凝固形成火成岩。
When magma cools and solidifies, igneous rock forms.
2. 表面的岩石被風化和侵蝕後變成碎屑，被搬運到河流、湖泊或海中沉積成為沉積岩。
The rock on the surface is weathered and eroded into fragments. The broken particles are transported to rivers, lakes or sea, where they are compacted and cemented forming the Sedimentary Rock.
3. 當任何一種岩石受到高壓或高溫，其結構或成分發生變化而成為變質岩。
The rock's texture or chemical composition changed due to high pressure or temperature which forms the Metamorphic Rock.
4. 岩石在地殼深處熔化而形成岩漿。
Rocks are melted into magma beneath the crust.

7. 試往展廳看看展出的岩石，並按上圖的三大類岩石為以下的岩石分類。
Please explore the rocks on display in the gallery and classify the following rocks based on the rock types shown in the drawing above.

花崗岩
Granite

礫岩
Conglomerate

大理石
Marble



a.

b.

c.

冷知識 Trivia

科學家怎樣知道地球年齡的秘密？
How do scientists know the age of planet Earth?

科學家是以在地球上找到最古老的含鐵隕石來推算地球的年齡。他們透過測定隕石內的放射性同位素，得知這些物質的年齡大概是四十六億年，這年齡被視為目前地球年齡的最佳估計。
Scientists uses the oldest iron meteorites to estimate the age of the Earth. The result of radiometric dating of radioactive isotopes of these meteorites reveals it is about 4.6 billion years, which is regarded as being the best estimate of the age of our planet.

8. 化石是怎樣形成的？請配對以下圖片及文字。
How did fossils form? Please match the pictures and text.



1.



2.



3.



4.

a. 遺體或其形態被保存下來
Remains of their shapes are preserved

b. Weathering and erosion gradually exposes the rock strata containing fossils

c. They gradually harden into rock-like substances called fossils

d. Remains or traces of organisms are buried

生物圈 Biosphere

生態系統 Ecosystem

請前往展廳內看看自然生態環境的「動物與植物」部分，並解答下列問題：
Please visit the "Flora & Fauna" area of the Natural Environment and answer the following questions:

生境是指一群生物居住的自然區域。
Habitat is a nature environment that is inhabited by a particular species of animal and plant.

9. 請列出展覽廳內五個不同生境的名稱。
Please name the five habitats in the gallery.

山澗或溪澗
Hillstream or Stream

a.

b.

c.

d.

10.

比較展覽區內任何兩個生境的基本特點。
Compare the characteristics of any two habitats in the gallery.

	例子 Example		
生境名稱 Name of the habitat	山澗或溪澗 Hillstream or Stream	a.	e.
生境的特點 (生物的大小、高度和種類) Habitat characteristics (Size, height and variety of organisms)	上游的水流急湍 Rapid flow of upper stream.	b.	f.
發現的生物 Organisms found	蜻蜓 Dragonflies 青蛙 Frogs	c.	g.
生物的適應方法 Adaptations shown by organisms	香港瀑蛙： 足肢較長，趾端生有吸盤，抵抗水流的沖擊。 Hong Kong cascade frog: long limbs with digital discs to resist the rapid flow.	d.	h.

延伸討論 Extended Discussion

甚麼是生物多樣性？上述兩個生境，哪一個有較高的生物多樣性？試從溫度、光線、水分、土壤條件和地形等環境因素找出差異的原因。
What is biodiversity? Which habitat of the above two has the higher biodiversity? Please find out the reasons affecting the biodiversity in two habitats by studying the environmental factors including temperature, light, humidity, soil conditions and topography.



鳥類大不同 Birds are Different



11. 展廳內也有些鳥類的標本，試比較林鳥和水鳥不同之處。
There are several bird specimens in the gallery.
Please find out the differences between woodland birds and water birds.

	 林鳥 woodland birds	 水鳥 water birds
大小 Size	a.	b.
居住環境 Living Environment	c.	d.
食物 Food	e.	f.



食物鏈 Food Chain

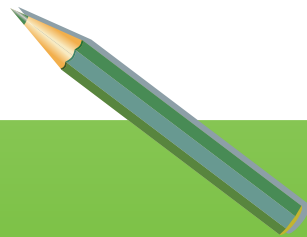


12. 河溪的食物鏈。
The food chain in river.



13.

試參考河溪動植物的食物鏈，畫出紅樹林的食物鏈。
Take the food chain in river as a reference, please try to draw a food chain in Mangrove.



食物網 Food Web

14.

試以展廳內原始森林中的動植物，在適當位置加上箭咀完成以下的食物網。

By applying the plants and animals in the climax forest in the gallery, please add the arrows to complete the food web.



答案 Answer

1. 46億 4.6 billion years old
2. 最古老: 泥盆紀 ; 最年輕: 第三紀
The oldest: Devonian, The youngest : Tertiary
3. 五分鐘 The last five minutes
- 4a. 礫岩 Conglomerate/砂岩 Sandstone/粉砂岩 Siltstone
- 4b. 大理岩 Marble/石灰岩 Limestone/石墨片岩 Graphitic Schist
- 4c. 熔結晶質凝灰岩 Welded Crystal Tuff/含壓扁浮岩的凝灰岩 Tuff with Flattened Pumice/火山岩 Volcanic Rocks/ 花崗岩 Granite/ 花崗閃長 Granodiorite/ 斑狀流紋岩 Porphyritic Rhyolite
- 4d. 礫岩 Conglomerate /卵石砂岩 Pebbly Sandstone/ 粉砂岩 Siltstone
- 4e. 粉砂岩 Siltstone
- 4f. 深圳 Shenzhen /廣西 Guangxi/大小磨刀 The Brothers
- 4g. 丫洲 Centre Island
- 4h. 萬宜水庫東壩 East Dam of High Island Reservoir/ 鴨脷洲 Ap Lei Chau/ 九龍 Kowloon/ 鶴咀 Cape D'Aguilar/ 竹篙灣 Penny's Bay

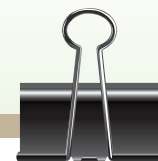


- 4i. 東平洲 Tung Ping Chau
- 4j. 銼翼蛤 *Limoptera sp.*/ 溝鱗魚 *Bothriolepis sp.*/ 大擬鱗木 *Lepidodendropsis arborescens*
- 4k. 假亞曾珊瑚 *Pseudoyatsengia sp.*/ 華夏瓣輪葉 *Lobatannularia cathaysiana*/ 創口海百合 *Traumatocrinus sp.*
- 4l. 亞輪狀花冠菊石 *Coroniceras cf. subrotiforme* / 香溪耳羽葉 *Otozamites hsiangchiensis*/ 瘦形枝脈蕨 *Cladophlebis exiliformis*
- 4m. 短圓形蛋 *Oolithes spheroids*/ 瑤屯巨型蛋 *Macroolithus yautunensis*
- 4n. 無盾龜 *Anosteira sp.*/ 青崗 *Cyclobalanopsis sp.*
江漢魚 *Jianghanichthys sp.*
6. a. 火成岩 Igneous Rock b. 沉積岩 Sedimentary Rock
c. 變質岩 Metamorphic Rock
7. a. 火成岩 Igneous Rock b. 沉積岩 Sedimentary Rock
c. 變質岩 Metamorphic Rock
8. 1d, 2a, 3c, 4b
9. a. 紅樹林 Mangrove Forest /泥灘 Mudflat b. 沿岸灘 Shore
c. 原始森林 The Climax Forest d. 竹林 Bamboo Thicket





10.	生境名稱 Name of the habitat	山澗或溪澗 Hillstream or Stream	紅樹林或泥灘 Mangrove Forest or Mudflat	沿岸灘 Shore	原始森林 The Climax Forest	竹林 Bamboo Thicket
	生境的特點 Habitat characteristics	四季的水流差異很大 dramatically change of water volume in different seasons 上游的水流急湍 rapid flow of upper stream	河口鹹淡水地區，水中含有鹽份 brackish estuaries and seashores, saline water 潮漲時會被海水淹蓋 flooded at high tide 泥土缺氧 airless mud	不斷受到海浪的沖擊 subjected to continuous wave action 非常乾燥 very dry	上層的樹冠覆蓋了整個森林，下層的植物只能吸收極少陽光，林地也變得陰暗昏沉 Uppermost storey is canopy layer and the interlocking crowns of larger trees prevent the sunlight go to the lower layers. The forest floor is deeply shaded	只有一種竹樹生長，環境較樹林簡單 composed of only one species of bamboo bamboo thicket is a relatively simple environment
	發現的生物 Organisms found	蜻蜓、青蛙 Dragonflies, frogs	紅樹 Mangroves 彈塗魚和招潮蟹 Mud skippers and fiddler crabs	海螺、藤壺、海螵 蟹 Sea snails, barnacles, sea slaters, crabs 南方鹹蓬、蔓荊子 South sea-blite, creeping vitex	雀鳥、兩棲類、蛇、蜥蜴、昆蟲、哺乳類動物等 Birds, amphibians, snakes, lizards, insects, mammals etc.	青竹蛇、昆蟲例如：竹鼻蟲、竹虎、天牛 Bamboos snakes, insects such as bamboo weevils, longhorn beetles
	生物的適應方法 Adaptations shown by organisms	蜻蜓：在春天繁殖，幼蟲在雨季來臨前已到達成熟期 Dragonflies: breed in the spring and adults emerge before the rainy period begins 香港瀑蛙：足肢較長，趾端生有吸盤，抵抗水流的沖擊 Hong Kong cascade frogs: long limbs with digital discs to resist the rapid flow	紅樹： - 根向上生長，以吸取空氣中的氧分 - 支柱根或板根，保持樹身穩定 - 鹽分經由葉片內的鹽腺排泄出來 Mangroves: - Roots grow upward into the air to collect oxygen - Prop or buttress roots provide stability - Remove salt from their tissues via salt glands on the leaves 彈塗魚和招潮蟹：在泥灘挖洞居住逃避捕食者 Mudskippers and fiddlers: make their burrows on the mudflat, hide themselves from predators	海螺：依靠肌肉“足”緊附於石上 Sea snails: attach themselves tightly to the rock with a muscular “foot” 藤壺：長期附於岩石上 Barnacles: permanently attached to the rocks 海螵蟹和蟹等：藏身於石縫中 Sea slaters and crabs: hide in rock crevices 南方鹹蓬、蔓荊子：能抵受鹽分，蠟質的葉面防止水份流失 South sea-blite, creeping vitex: salt-tolerant, prevent water loss by waxy leave	林鳥：身形細小，可在樹木間飛舞穿梭。森林裡遠程視野欠佳，許多林鳥都會以嘹亮的鳴聲求偶或作威嚇 Forest birds: relatively small, allow them to move through the vegetation. Because it is difficult to see for long distances in the forest, they use loud calls and songs either to attract potential mates or ward off competitors 昆蟲、爬行及兩棲類動物：保護色，以便融入周遭環境，不被發現。有些蛙類、蛇及蜥蜴都懂得攀樹 Insects, reptiles and amphibians: camouflage colorations to blend in with their surroundings. Many frogs, snakes and lizards are able to climb trees	青竹蛇：背部為翠綠色，腹部則呈黃色，能融入周遭竹林青黃一片的環境 Bamboos snakes: blend in well with the green and gold of the bamboo 昆蟲：偽裝成竹枝一樣 Insects: pretend to be bamboo's branches



- 11. a. 體形較小 Relatively smaller
b. 體形較大 Relatively bigger
c. 樹林 Woodlands
d. 濕地(沼澤，河流，泥灘，岸邊)
Wetlands (swamp, river, mudflat or coastal area)
e. 昆蟲，果子，種子 Insects, fruits or seeds
f. 魚，水中的小動物 Fish or small aquatic animals
- 12. a. 雀鳥，蛇 Birds or Snakes
b. 河蟹，青蛙，魚 Crabs, Frogs or Fish
c. 螺，蚊的幼蟲 Water snails or Mosquito larvae
d. 河溪植物 Aquatic plants
- 13. 參考答案: 水鳥(小白鷺) <-- 彈塗魚/招潮蟹 <-- 紅樹或任何適合的答案
Reference answer: Waterbirds (Little Egret) <-- Mudskippers/ Fiddler crabs <-- Mangroves or any appropriate answers

