教師指南
Teachers' Guide
Introduction

The Earth on which humans rely for survival possesses a wealth of natural resources and wildlife. The activities of various life forms can influence the balance of this intertwined ecosystem. A balanced ecosystem is essential for life to flourish whilst any imbalance may cause disastrous consequences. The Jockey Club Environmental Conservation Gallery aims to illustrate the importance of environmental conservation to the community; promote a better understanding of the global environment and the delicate balance between nature and human. It also fosters a holistic view of environmental conservation using Hong Kong as an example, and advocates an environmental friendly and sustainable lifestyle to the public.

Designed in a natural environment and comprised of more than 40 interactive exhibits, the gallery covers 10 themes, including global, polar, local and personal issues; impacts on air, water and land resources, and life; as well as waste and energy problems.

Jockey Club Environmental Conservation Gallery is funded by The Hong Kong Jockey Club Charities Trust.

Exhibition Period: Starting from 28.8.2010
(Closed on Thursdays (except public holidays) and the first two days of the Lunar New Year)
Exhibition Venue: G/F., Exhibition Hall, Hong Kong Science Museum
Learning Guidance

Environmental Conservation Gallery provides information for kindergarten teachers to prepare for teaching the unit on “Growth of Animals and Plants”. Primary teachers can make reference to the gallery contents for teaching units such as “I love Nature” and “Environment and Me” under General Studies. Secondary teachers can also adopt the contents as supplementary materials for teaching the unit of “Observation of Organisms”, “Materials from the Earth” under the Junior Secondary Curriculum (Integrated Science) as well as topics on “Applied Ecology” and “Biology and Environment” under the New Senior Secondary Curriculum (Biology).

Educational resources

To facilitate better understanding of pupils about the gallery, the Museum has prepared interesting exercises at kindergarten, primary and secondary levels. After the visit, secondary and primary students can discuss the questions and topics from the worksheets and teachers’ guide with classmates and teachers for in-depth exploration.

Post-visit activities

Besides this exhibition, the zone “Plants and Animals” in the Life Exhibition Hall and some exhibits in the Energy Efficiency Centre of the Museum may also facilitate the understanding of the “Life Story”, “Air Story” and “Energy Story” of Environmental Conservation Gallery. Free-guided tour will be provided for this exhibition during school visit sessions and a film show “Environmental Dog” will be arranged for primary and secondary students in special sessions during the school visit.
Climate changes and environmental problems are affecting life worldwide. Unfortunately, the Earth is facing unprecedented risks and threats. To save our home, we must first understand the current situation of our planet.

**Global View**

Through the projections on the large globe of 1.5 metres in diameter, you can appreciate the beauty of the Earth as well as having an overview of the precious natural resources such as solar energy, air, water, forest and fossil fuel on our planet and their importance.
<table>
<thead>
<tr>
<th>2</th>
<th>Earth Focus</th>
<th>Through exploration of various natural phenomena occurred in the world, we may understand the current situation of the Earth where we live.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Polar Story</td>
<td>The poles of the Earth contain invaluable information for scientific research, helping us to understand global environmental changes in the past and predict future climate trend.</td>
</tr>
<tr>
<td>4</td>
<td>Meet Rebecca Lee</td>
<td>Dr Rebecca Lee shares her polar experiences with us, enhancing our understanding about the importance of scientific researches being conducted in the polar regions.</td>
</tr>
<tr>
<td>5</td>
<td>Cool Evidence</td>
<td>Ice cores provide detailed records of the Earth’s climate in the past. Access to these icy archives will help identify major incidents and climate changes taken place long time ago.</td>
</tr>
<tr>
<td>6</td>
<td>Ice Sheets over Time</td>
<td>Comparison of the shape of ice sheets at different periods of time will reveal how global warming has been making the area of ice sheets smaller and smaller.</td>
</tr>
<tr>
<td>7</td>
<td>A Day at the South Pole</td>
<td>Conduct environmental researches together with scientists at the Chinese Great Wall Station in Antarctica, and we may understand more about their research and lives there.</td>
</tr>
<tr>
<td>8</td>
<td>Polar Resources</td>
<td>Watch videos showing wildlife animals and plants, rocks and natural resources in the polar regions.</td>
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<tr>
<td></td>
<td>Treasures from the Poles</td>
<td>Appreciate specimens of rocks, animals and plants collected in the polar regions.</td>
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<tr>
<td>Chapter</td>
<td>Title</td>
<td>Content</td>
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<tr>
<td>9</td>
<td>雪龍號 Xue Long Icebreaker</td>
<td>View the model and video of China’s first icebreaker “Xue Long” and learn about the facilities and research activities carried out on the ship.</td>
</tr>
<tr>
<td>10</td>
<td>空氣故事 Air Story</td>
<td>Air is one of the essential elements for life on Earth. With rapid urban development, humans release large volumes of waste gases into the atmosphere, causing the air to be polluted. We must make concerted efforts to help improve air quality through our own, personal actions.</td>
</tr>
<tr>
<td>11</td>
<td>溫室效應 Greenhouse Effect</td>
<td>Conduct a simulated experiment of greenhouse effect and understand how it leads to global warming.</td>
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<tr>
<td>12</td>
<td>綠色車船 Green Transport</td>
<td>Introduces environmentally-friendly means of transportation adopting new technologies that enable clean travelling without causing air pollution.</td>
</tr>
<tr>
<td>13</td>
<td>捕捉廃氣 Culpits in the Air</td>
<td>Get to know various sources of air pollution, and try to catch harmful gases for restoration of the fresh air.</td>
</tr>
<tr>
<td>14</td>
<td>廃氣禍害 Gaseous Havoc</td>
<td>See how harmful emissions will adversely affect our health when we walk and breathe in the streets.</td>
</tr>
<tr>
<td></td>
<td>臭氧反應 Ozone Reaction</td>
<td>Understand the formation of holes in the ozone layer of the atmosphere and their impacts on us.</td>
</tr>
<tr>
<td>15</td>
<td>交通智選 Ride Smart</td>
<td></td>
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<td>----</td>
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<td></td>
</tr>
<tr>
<td>選擇乘坐不同的交通工具，找出哪一種可同時減少耗用能源和排放廢氣。</td>
<td></td>
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<tr>
<td>Through travelling by different modes of transport, we may find out which one can keep energy use and emissions as low as possible.</td>
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<table>
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<tr>
<th>16</th>
<th>廢物故事 Waste Story</th>
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<tbody>
<tr>
<td>每個人日常生活的各種活動，都難免會產生廢物，我們必須採取行動，避免廢物積聚，並從中節省金錢和能源。</td>
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<tr>
<td>It is inevitable that all activities in everyone’s life produce waste. We must take the initiative to avoid waste accumulation which can save both money and energy.</td>
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<table>
<thead>
<tr>
<th>17</th>
<th>廢物分類 Waste Separation</th>
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<tbody>
<tr>
<td>嘗試把垃圾分類，放進適當的回收箱內，看看能否做好處理廢物的第一步。</td>
<td></td>
</tr>
<tr>
<td>Try to sort garbage by placing them in appropriate recycling bins. See if you can handle wastes properly.</td>
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<tr>
<th>18</th>
<th>生物故事 Life Story</th>
</tr>
</thead>
<tbody>
<tr>
<td>人類的過度開發會破壞大自然，甚至令一些物種滅絕。但大自然是我們生活的一部分，它的可持續發展對人類的生存至為重要。</td>
<td></td>
</tr>
<tr>
<td>Human exploitation can destroy nature and even cause species to become extinct. In fact, nature is a part of our lives and its sustainability is important to the survival of all humans.</td>
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<tr>
<th>19</th>
<th>未來世界 Future Scenarios</th>
</tr>
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<tbody>
<tr>
<td>藉著觀看影片，了解人類對環境所做成的破壞，並展望人類能憑著創意和共同努力，建設一個美好的未來世界。</td>
<td></td>
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<tr>
<td>Through the video, we can see how human activities has caused destruction to the environment, and can also envision the building of a better future of mankind out of our creativity and concerted efforts.</td>
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<td>Page</td>
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<td>19</td>
<td>生態保育區 Conserved Habitats</td>
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<td>20</td>
<td>生命之網 Web of Life</td>
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<td>21</td>
<td>瀕危物種 Endangered Species</td>
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<td>22</td>
<td>季節交響曲 Symphony of Seasons</td>
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<td>23</td>
<td>蝴蝶翩翩 Dance of the Butterflies</td>
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<td></td>
<td>能源故事 Energy Story</td>
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<td>24</td>
<td>太陽能飛機 Fly a Solar Plane</td>
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<td>25</td>
<td>面向疾風 Face the Wind</td>
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<td>26</td>
<td>太陽能電池板 Solar Panels</td>
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</tbody>
</table>
### Jump 4 Energy

Renewable energy includes solar energy, wind energy, tidal energy and biomass energy, etc. You can compete with a friend to see if you can tap these kinds of energy efficiently.

### Green Gadgets

Look at some gadgets using green energy, and try to charge your mobile phone with the renewable energy generated by yourself.

### Land Story

Land provides food, habitats and niches for all creatures. Owing to physical limitations, land is not adequate to meet the insatiable wants of mankind. It is high time that we should reciprocate and protect our Earth.

### Planting Contest

Understand the important role of trees in the ecology, and participate in a tree planting contest to save the shrinking forests.

### Ecological Footprint

Calculate your own ecological footprint due to activities taking place in your daily life.

### Organic Farming

See if you can improve your farmland by employing organic farming methods effectively.

### Water Story

Water is indispensable to life, and our health also hinges on the intricacy and delicacy water cycle. We must protect this system to ensure it is working properly.
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<th>32</th>
<th>食水處理站 Water Processing Plant</th>
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<tbody>
<tr>
<td></td>
<td>透過參與處理食水的多項程序，從而明白為何要珍惜用水。</td>
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<td></td>
<td>Take parts in the process of water treatment, and learn why we should save water.</td>
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<tr>
<th>33</th>
<th>用水基本法 Mind the Tap</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>估計你每天的用水量，看看可如何節約用水。</td>
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<tr>
<td></td>
<td>Check your daily consumption of water, and see what can be done to save water.</td>
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<tr>
<th>34</th>
<th>污水處理 Wastewater Treatment</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>觀看有關香港污水處理的影片和了解如何使用薄膜過濾。</td>
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<td></td>
<td>Watch a video about sewage treatment in Hong Kong, and understand the operation of membrane filtration.</td>
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<tr>
<th>35</th>
<th>海洋生態之旅 Sustainability Voyage</th>
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<tbody>
<tr>
<td></td>
<td>參與海洋生態之旅，決定如何在人類的需要和魚類生態之間取得平衡，讓魚類得以繼續生存和繁殖。</td>
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<tr>
<td></td>
<td>By embarking on a sustainability voyage, you will decide how to balance human needs with the ecology of fishes so that the species can continue to live and breed.</td>
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<tr>
<th>36</th>
<th>香港故事 Hong Kong Story</th>
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<tbody>
<tr>
<td></td>
<td>香港位於亞熱帶地區，擁有獨特的山勢和分明的季節，因此棲息了種類繁多的野生生物，其中有些動植物甚至是香港獨有的。</td>
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<tr>
<td></td>
<td>Situated in a subtropical region with mountainous relief and distinct seasons, Hong Kong is home to a wide variety of wildlife. Some of these are endemic to Hong Kong.</td>
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<tr>
<th>37</th>
<th>湿地遠眺 Eye on Wetlands</th>
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<tbody>
<tr>
<td></td>
<td>認識什麼是濕地，觀察當中的一些植物以及棲息其間的動物的生活和習慣。</td>
</tr>
<tr>
<td></td>
<td>Understand what wetlands are, and observe some plants there as well as the life and habits of animals inhabiting among them.</td>
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<tr>
<th>38</th>
<th>米埔遠眺 Eye on Mai Po</th>
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<tbody>
<tr>
<td></td>
<td>了解為何米埔獲列為拉姆薩爾濕地，觀賞置身其中的各種留鳥和候鳥。</td>
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<tr>
<td></td>
<td>Understand why the wetland in Mai Po is listed as a Ramsar site, and watch a variety of resident birds and migratory birds inhabiting there.</td>
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</tbody>
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<tr>
<th>38</th>
<th>香港動植物 Local Flora and Fauna</th>
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<tbody>
<tr>
<td></td>
<td>透過觀望鏡觀賞本地多姿多彩的生態，如中華白海豚、黑臉琵鷺和盧氏小樹蛙等。</td>
</tr>
<tr>
<td></td>
<td>Observe the rich biodiversity of the territory such as Chinese white dolphin, black-faced spoonbill and Romer's tree frog, etc through viewers.</td>
</tr>
</tbody>
</table>
### 香港郊野 Hong Kong Countryside

介绍香港豐富的動植物物種，包括部分瀕危物種的數量。

Introduce Hong Kong’s rich species of plants and animals while some of them are endangered species.

### 水之動力 Water Power

观察這裏的人造河流，以了解水車是如何發電的。

Observe this artificial river and see how a watermill generates power.

### 我們的故事 Our Story

我們可以選擇環保的生活方式來協助解決環境問題，其實只要大家能為環境設想而改變一些習慣，便能締造更美好的生活環境。參與這互動劇場，評估一下你的生活方式和了解如何實踐綠色生活。

We can tackle environmental problems by being eco-friendly in our lifestyle choices. If we can take the initiative to change some of our habits with due consideration to the environment, we can make the world a better place. Participate at this interactive theatre to assess your lifestyle and learn about green living practices.
参考書目 References

Agricultural, Fisheries and Conservation Department Newsletter. *Hong Kong Biodiversity*. Volume 8, March 2005


網上資源 Online resources

漁農及自然護理署－自然護理
Agricultural, Fisheries and Conservation Department – Conservation

漁農及自然護理署－香港生物多樣性
Agricultural, Fisheries and Conservation Department – Hong Kong Biodiversity

漁農及自然護理署－濕地護理
http://www.afcd.gov.hk/tc_chi/conservation/con_wet/con_wet_abt/con_wet_abt_gen/con_wet_abt_gen.html
Agricultural, Fisheries and Conservation Department – Wetland Conservation
http://www.afcd.gov.hk/english/conservation/con_wet/con_wet_abt/con_wet_abt_gen/con_wet_abt_gen.html

香港濕地公園
Hong Kong Wetland Park
水務署－珍惜水資源
Water Services Department - Water Conservation

香港天文台－香港高空氣象觀測
Hong Kong Observatory – Upper-Air Weather Measurements in Hong Kong

機電工程署－能源資訊園地
Electrical and Mechanical Services Department – EnergyLand

嘉道理農場暨植物園－保育
Kadoorie Farm and Botanical Garden – Conservation

世界自然基金會（香港分會）－保育
http://www.wwf.org.hk/whatwedo/conservation/
World Wild Fund (Hong Kong) Conservation – Conservation

世界自然基金會－生態足印
http://www.wwf.org.hk/whatwedo/footprint/
World Wild Fund (Hong Kong) Conservation－Ecological Footprint

綠田園基金－有機耕作
http://www.producegreen.org.hk/agronomy_01.htm
Produce Green Foundation – Organic Farming
http://www.producegreen.org.hk/eng/agronomy_e.htm

香港海豚保育協會－中華白海豚
http://www.hkdcs.org/QnA/HKdolp_cwd.htm
Hong Kong Dolphin Conservation Society – Chinese White Dolphin
http://www.hkdcs.org/QnA/HKdolp_cwd_en.htm
Energy Efficiency Website
http://www.hk-phy.org/energy/index_e.html

Global Footprint Network

The Ramsar Convention on Wetlands
http://www.ramsar.org/

台灣經濟部能源局－再生能源兒童網站
http://www.re.org.tw:8081/smart.jsp

台灣經濟部水利署－珍惜水資源

美國國家環境保護局
http://www.epa.gov/chinese/
United States Environmental Protection Agency
http://www.epa.gov/
延伸活動  Extended activities
試帶領學生進行以下活動及引導他們思考下列問題，然後一起討論及分享意見。
Try to lead the pupils to participate in the following activities and guide them to answer the questions. Then discuss the answers and share the ideas with the pupils.

極地故事 Polar Story

1. 這是一個高空探測儀器，你知道它是甚麼嗎？
   It is an upper-air sounding system. Did you know what it is?

2. 氣球內的氣體是甚麼？
   What gas does the balloon contain?

3. 它是利用甚麼訊號來傳送資料的？
   What kind of signal does it use to transmit data?

4. 它能探測哪些資料？
   What kinds of data can it measure?

5. 試猜猜這個儀器的一般高度限制是多少？
   Would you guess the normal height restriction of such kind of balloon?

6. 氣球若升過了這一高度，你認爲會有甚麼情況發生？為甚麼？
   If it stays at an altitude higher than that, then what will happen? Why?
生物故事 Life Story
以下是兩種於香港常見的動植物，你對牠們的認識有多少呢？試到郊外觀察及進行資料搜集（如剪報、互聯網、書籍等），並為這兩種動植物設計生物資料咗吧！
The following are two kinds of animal and plant commonly seen in Hong Kong. How much do you know about them? Observe them in the countryside and conduct data collection (e.g. from newspaper cutting, the Internet and books, etc.) and design a biological data card for them.

資料咗內容：名字、暱稱、生長環境、食物、外貌特徵、生活習性及其他有趣資料
Content of the data card: Name, nickname, living habitats, food, physical characteristics, living habits and other interesting information

(Image credit: Agricultural, Fisheries and Conservation Department)

資料咗內容：名字、暱稱、生長環境、用處、氣味及其他有趣資料
Content of the data card: name, nickname, living habitat, physical characteristics, uses, scent and other interesting information
Waste Story

1. Conduct a role-play exercise. Express the views on landfill extension according to different roles.

The proposed roles include:
(a) an EPD official
(b) a member of the general public
(c) a real estate developer
(d) a Tseung Kwan O District Council member
(e) a representative of an environmental protection body

Do you think landfill extension can solve the problem of municipal waste?

What else other than landfill extension do you think are possible ways to mitigate the waste disposal problem or reduce the large volume of wastes produce?
2. 読者香港環境保護署的資料，並根據下圖回答以下题目：
Read the information provided by the Hong Kong Environmental Protection Department (EPD, HK), and answer the following questions in accordance with the data provided in the diagram below:

i. 甚麼是都市固體廢物？它包含了哪幾種廢物？
What is municipal solid waste (MSW)? What kinds of solid waste does it include?

ii. 在 2008 年，哪種廢物在總廢物量中佔最多數？約佔多少？
Which waste ranks first in quantity out of all kinds of wastes in 2008? What is the approximate percentage it occupies?

iii. 香港的廢物量呈現甚麼趨勢？
What is the trend of waste quantity in Hong Kong?

iv. 哪一種廢物量的跌幅最大？為甚麼？
Which kind of waste has the largest decrease in quantity? Why?

v. 試進行資料搜集，並預期本港未來的建築廢料量會增加還是減少？為甚麼？
Conduct data collection of your own. Do you expect an increasing or decreasing trend for the quantity of construction waste in future? Why?
延伸活動參考答案  
Suggested Answers For Extended activities

極地故事 Polar Story

1. 探空氣球或無線電探空儀 Weather balloon or radio upper-air sounding system (radiosonde).
2. 氫氣 Hydrogen
3. 無線電訊號 Radio signals
4. 高空溫度、濕度、氣壓、風速和風向
   Atmospheric temperature, humidity, air pressure, wind force and direction
5. b. 30 公里. 30 km
6. 探空氣球會爆裂並墜下，因爲高空的氣壓過低。
   The observation balloon will burst and fall down because the air pressure is too low at upper air.

廢物故事 Waste Story

1. 都市固體廢物包括來自住宅及工商業活動所產生的固體廢物
   Municipal solid waste includes domestic and trade solid wastes.
2. 家居廢物佔 40-50 %  Domestic waste occupies 40-50 %
3. 下降 Decreasing
4. 建築廢料。因爲廢物處理技術的改良、有效建築規劃、經濟轉差、工程減少等或任何合理答案。
   Construction waste. It is because of the improved technologies of waste handling, enhanced effectiveness in architectural planning, economic downturn, reduction in number of projects, or any reasonable answers.
你認為甚麼因素會威脅地球的健康？
What factors do you think will threaten the health of the Earth?
人口增長、經濟發展、消費行為、氣候變化、自然災害、山火或任何合理答案
Population growth, economic development, climate change, consumption behaviour, natural disasters, hill fire or other reasonable answers

2. A > B > B > B > B > A > A
I am polar bear.
I live in the North Pole.
I like / do not like living with my species.
I am a solitary animal.
I like eating seals, fish, birds and whales.
Two of my characteristics / habitual behaviour: (1) being a good swimmer, and (2) having small ears and tail to avoid heat loss (or any other reasonable answers).

I am penguin.
I live in the South Pole.
I like / do not like living with my species.
I am a social animal.
I like eating krill, fish and squids.
Two of my characteristics / habitual behaviour: (1) being a good swimmer without flying skill, and (2) having a very thick layer of subcutaneous fat and densely-covered feather to keep warm and store heat (or any other reasonable answers).
The impacts of air pollution on human beings and our planet are:

- Adversely affecting the health of heart or lung
- Reducing visibility
- Causing global warming and climate change
- Producing acid rain to adversely affect plant growth
- Producing acid rain to cause erosion of buildings
- Irritating the eyes to cause discomfort

Waste Story

1.

2.
4. In addition to recycling and reusing, can you think of any other methods to reduce wastes in our daily life? Reduce (or any other reasonable answers)

生物故事  Life Story

1. 中华白海豚  Chinese White Dolphin  绿海龟  Green Sea Turtle  盧氏小樹蛙  Romer's Tree Frog  黑脸琵鹭  Black-faced Spoonbill

2. 不同植物部位的功能  Functions of different parts of a plant
   - To deliver water, nutrients and food to all parts of a plant
   - To protect the seeds inside
   - To attract small animals to spread pollen
   - To contain chlorophyll which produces nutrients with sunlight
   - To grow a new plant
   - To fix a plant to the ground, and absorb water and nutrients from soil
3.

能源故事  Energy Story

1.

可再生能源  Renewable energy

- 安全而又用之不盡  
  Is safe and inexhaustible
- 可以被重複使用  
  Can be used repeatedly
- 會釋放空氣污染物  
  Will produce air pollutants
- 短時間內難以補充  
  Cannot be replenished shortly
- 不會釋放空氣污染物  
  Will not produce air pollutants
- 用後會耗掉  
  Will be used up after consumption
- 在自然環境中會重複產生  
  Can be regenerated repeatedly in the natural environment

不可再生能源  Non-renewable energy
三種可再生能源的例子 Three examples of renewable energy：
生物質能、潮汐能、風能、太陽能（或任何合理答案）
Biomass energy, tidal energy, wind energy, solar energy (or any other reasonable answers)

三種不可再生能源的例子 Three examples of non-renewable energy：
煤、石油、天然氣、核能（或任何合理答案）
Coal, petroleum, natural gas, nuclear energy (or any other reasonable answers)

土地故事 Land Story
有機耕種 Organic Farming

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<thead>
<tr>
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<th>間種</th>
<th>適時種植</th>
<th>輪種</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Intercropping</td>
<td>Planting of seasonal crop</td>
<td>Crop Rotation</td>
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<tr>
<td>It is the practice of growing more than one kind of crop simultaneously on the same land.</td>
<td>To plant seasonal crops during appropriate climate (season) will grow more healthy plants with less threats from pest and disease.</td>
<td>It is the practice of growing a series of different kinds of crops on the same land in different seasons.</td>
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</tr>
</tbody>
</table>
4. 利用一些生長迅速，容易腐爛的植物，如豆科植物作肥料。
To use some plants easy to grow and decompose like legumes as fertiliser.

5. 利用可被生物降解的有機物製成的天然土壤改良劑。
To use biodegradable organic matters for making natural soil conditioner.

生態足印 Ecological Footprint
1. 生態足印的單位 The unit for ecological footprint: 公頃 Hectare

2. 生態足印的主要來源 The major contributor to Hong Kong’s ecological footprint: 發電及用電 generation and consumption of electricity
4. & 5. 自由作答 Students’ own answers

6. 以下哪項會增加生態足印？
Which of the following activities will enlarge the ecological footprint?
1. 排放污染物及溫室氣體 Emission of pollutants and greenhouse gases
2. 過度砍伐及捕撈 Over-logging and excessive fishing
3. 人口增加 Increase in population

水的故事 Water Story
1. 兩個可回收廢水再用的例子 Two examples of reusing wastewater:
   i. 洗米用的水可用來沖廁
      To flush toilet with water used to clean rice.
   ii. 洗菜用的水可用來灌溉盆栽（或任何合理答案）
      To water domestic plants with water used to clean vegetables (or any other reasonable answers)

2. 廢物類型 Waste types
   大砂石 Coarse sandstone
   粉狀活性碳 Activated carbon powder
   細砂 Fine sand
   濃縮在水中的顏料 Colours dissolved in water
   阻隔廢物所使用的工具 Tools for separating the wastes
   濾紙 Filter paper
   隔茶網 Tea leaf separator

為甚麼這三種工具可阻隔以上的廢物呢？
Why can these three tools separate the above wastes?

活性碳表面有很多肉眼看不見的小孔，可以吸附顏料中的微細粒子。而濾紙上則有很多小孔
供液體粒子通過，但體積較大的固體粒子如幼砂則不能通過。隔茶網的過濾原理跟濾紙一樣，
都是用來分隔混合在一起的液態及固體物質，但因它們的小孔較大，故只能阻隔如大砂石
般體積較大的固體物質。

There are many invisible holes on the surface of activated charcoal / carbon which can adsorb very
small pigment particles. Filter paper contains numerous small holes through which liquid particles
can pass but not larger solid particles such as fine sand. The filtration principle for tea leaf separator
are more or less the same in separating liquid from solid of a mixture. As their small holes are larger,
they can only separate solid with larger size such as coarse sandstone.
Hong Kong Story

1. Hong Kong has an approximate area of 1,104 km². About 40% of the land area designated as country parks is under proper management and protection by the “Country Parks Ordinance”. Despite its small size, Hong Kong is rich in wildlife species. Some kinds of animals are endemic to our territory such as Hong Kong Paradise Fish (*Macropodus hongkongensis*) (or any other reasonable answers). Apart from country parks, Hong Kong has many lovely marshes, fishponds, mangroves and mudflats generally called wetlands. To provide a framework for international efforts and cooperation for wetland conservation, an international convention known as “Convention on Wetlands / Ramsar Convention” was signed by many countries in 1971. In 1995, Mai Po and Inner Deep Bay in Hong Kong were listed as Ramsar Sites in China.

2. Wetlands in Hong Kong are mainly located c. throughout the territory.

Wetlands account for roughly a. 6% of the Earth’s land surface.

Wetlands a. can support propagation of life forms.

Wetlands are c. formed by both ways (constructed artificially or formed naturally).

Wetlands are c. formed by both ways (constructed artificially or formed naturally).

Wetlands are of c. can be in both ways (salty water or freshwater).

During low tide, the water depth in wetland is a. less than 6 m.
小企鵝活動習作參考答案  Suggested answers for Little Penguins’ Activity Sheet

地球故事・我們的故事  Earth Story, Our Story

1.

寒地故事  Polar Story

2.
空氣故事 Air Story

1.

2.
Waste Story

1.

Energy Story

1.
生物故事、土地故事、香港故事  Life Story, Land Story, Hong Kong Story

1.

2.

蝴蝶 Butterfly

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<tr>
<td>Butterfly</td>
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<td>Pupa</td>
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青蛙 Frog

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<tr>
<td>Egg</td>
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<td></td>
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<tr>
<td>Large tadpole</td>
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<tr>
<td>Small tadpole</td>
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水的故事 Water Story

1. 這個海洋世界共有 _______ 9 _______ 種動植物。
   (以實線繪畫的動植物計算，包括海龟、鯊魚、烏賊、海馬、魚、龍蝦、蟹、海蛇、海草)
   This ocean world has _______ nine _______ marine animals and plants in total. (By counting the marine animals and plants which are drawn by solid lines, they are sea turtle, shark, squid, sea horse, fish, lobster, crab, sea snake and seaweed)

2. 我是 I am

   中華白海豚 Chinese White Dolphin