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閱讀繽紛2014
Summer Reading Month
19.7 - 18.8.2014



地球與我

生生不息

The Earth and I: Sustainable Development

展覽資料冊

Exhibition booklet



目錄 contents

「2014閱讀繽紛月」兒童專題展覽介紹 Children's Thematic Exhibition of Summer Reading Month 2014

9

衣 Clothing

11

- 衣著要健康又環保，你要知道！
What clothes are good for health and the environment? 12
- 要穿著健康與環保，就要由源頭做起，材料選得對，健康有保障。
Production of healthy and eco-friendly clothes should start from the selection of the right raw materials, which is good for health. 13
- 了解衣物纖維
Getting to know about fibre in clothes 14
 - 天然纖維
Natural fibre 14
 - 人造纖維
Artificial fibre 15
- 節能洗衣法
Energy-saving methods for washing clothes 16
- 衣服的洗滌標示
Laundry symbols of clothes 21
- 購物精明眼
Wise shopping 22
- 我還是有用的！
I'm still useful! 23
- 環保小提議
Tips on environmental protection 24

食 Food

26

環境篇 Environment

27

- 一粥一飯，與環境息息相關
Every bite is closely affecting the environment 27
- 機械式農業
Machine-based agriculture 28
- 不同食物的碳足印
Carbon footprint of different food 29
- 溫室氣候是我們「吃」出來的嗎？
Does our “eating” cause the greenhouse climate? 31
- 「有機耕種」保護環境
“Organic farming” for environmental protection 33

飲食篇 Diet

36

- 「有機」放大鏡：沒有化學肥料和農藥 = 有機食物？
Magnifying “organic”: free from chemical fertilizers and pesticides = organic food? 36
- 光看外表分辨不了？認識「有機認證」
Organic or non-organic? What is “Organic certification” 38
- 知多一點點(1)
Know more (1) 39

● 知多一點點(2)	
Know more (2)	40
● 魚與熊掌：平衡健康與環境的飲食	
Health or environment: A balanced diet for health and environment	41
● 健康為本	
Focusing on health	41
● 低碳飲食	
Low-carbon diet	42
● 保育糧食資源	
Conserve crop resources	44

● 惜食篇 No Food Waste 45

● 廚餘：每天3,000噸的廚餘？	
Food waste: 3,000 tons/day?	45
● 是廚餘還是剩菜？正確的廚餘概念！	
Waste or leftover? Right concept of food waste!	47
● 惜食攻略：你我做得到的好習慣	
How to avoid food waste: Good habits that we can have	49
● 惜食有因：一些看不見、捉摸不到但重要的理由	
Why we should reduce food waste: Some important reasons have to know	51



水 Water

52

- 我們的淡水
Our fresh water
- 節約用水好習慣
Build a good water-saving habit
- 乾旱
Drought

52

53

55

住 Living

57

「能源標籤」知多少 Know more about “energy labels”

58

-  甚麼是「能源標籤」？
What is “energy label”?
-  那些電器需要有能源標籤？
Which electrical appliances need to have energy labels?
-  能源標籤有那些級別？
Grades of the energy labels
-  了解能源標籤
Get to know energy labels

58

59

60

61

我們不是垃圾！
We are not waste!

64



重複利用
Recycle

65



齊做環保小大使
Be an environmental protection ambassadors

69



環保小大使小守則
Rules for environmental protection ambassadors

70

「廢物分類」你要知
Know more about “waste separation”

72



甚麼是「家居廢物源頭分類計劃」？
What is “Programme on Source Separation of Domestic Waste”?

72



怎樣參與「家居廢物源頭分類計劃」？
How to join the “Programme on Source Separation of Domestic Waste”?

73



廢物回收Do & Don't
Do & Don't

74

少用電梯，多行樓梯
Use the stairs more and the lift less

76



環保小提議
Tips on environmental protection

77

善用空調，多用風扇

Make good use of air-conditioners and electric fans

78



環保小提議

Tips on environmental protection

79

環保屋

Environmental-friendly homes

80

太陽能

Solar energy

81

玻璃幕牆

Glass curtain wall

82

照明系統

Lighting System

83



環保小提議

Tips on environmental protection

83

行

Transport

84

出行

Going Out

85



升降機解碼：節能多面睇

About elevators: A closer look at energy saving

85



一起選擇低碳交通工具

Let's use low-carbon transportation vehicles

87



行路不難：短途的零碳體驗

Walking is not hard: A short zero-carbon trip

88



自駕減碳小秘方

Tips on low-carbon driving

89

攜帶物

Belongings

92



不選膠袋，更不用紙袋

Do not use plastic bags and paper bags

92



電子器材：趕時尚也要環保

Electronic devices: Eco-friendly as well as fashionable

96



別為未來留下塑料瓶化石

Don't leave behind plastic bottles which may be fossilized

98



地球未來在我手：購物前・想清楚

The future of the earth rests on our hands: Think before we shop

99

旅行

Travelling

101



負責任的旅行者

Be a responsible traveller


101



遠足郊遊要環保

To protect environment when hiking

105



碳足印

Carbon footprint

一切由「碳」開始

All starts with “carbon”

108

一個塑料袋的自白：我的碳足印

A plastic bag’s messages: My carbon footprint

113

齊來估算一天的碳足印

Let’s estimate carbon footprint in a day

115

減碳小法寶

Magic key to reducing carbon emission

116

環保4R

4R for environmental protection

四位一體的廢棄物管理層級

Four-level integrated waste management

119

「替代」還是「轉廢為能」

“Replacement” or “recovery”

121



「2014閱讀繽紛月」兒童專題展覽介紹

過去一百年是人類歷史上物質豐盈的世紀。科學和技術的進步，讓我們可以開採更多地球上從未被開發的資源；各類生產技術的提升，讓我們能製造各式各樣更便利生活的產品，在改善生活質素的同時，亦改變了人類生活習慣和影響了地球生態環境。小朋友，我們想一想，今天享受的物質資源，可以留傳給下一代嗎？今天享受的便利生活模式，地球環境可以繼續支持它下去嗎？地球天然資源日漸減少，地球環境不斷受損，我們是必須學會珍惜資源，保護環境，為下一代著想，愛護地球——我們的家！

2014年的閱讀繽紛月兒童專題展覽以「地球與我——生生不息」為主題，由「衣」、「食」、「住」、「行」四方面，看看我們在生活上一一些小決定如何影響着地球的環境，日常生活中精明的選擇和小心的計劃，可以讓地球再次健康起來。「衣」的展區由衣着方面入手，透過細心的選擇及購買、小心的洗滌及利用，到最後注意循環再用及丟棄的過程，學習如何穿得健康與環保。

「食」的展區會探索糧食生產與地球氣候的關連，瞭解有機耕種對環境的意義，以及反思現代社會廚餘的問題；由飲食習慣方面着眼，找出平衡個人和地球健康的方法。「住」的展區則從節約能源、舊物再利用、廢物分類及家居設計幾個方向，介紹如何從家居生活的小點滴著手，改善環境，愛護地球。

「行」的展區將會由出門一刻開始，逐一細看我們所留下的碳足印：從升降機、交通工具的使用習慣、購物袋、電子器材泛濫對環境的影響，並尋找日常生活中節能減排的方法，以及如何在旅行或郊遊時減少碳足跡。

如果我們有節制、智慧地使用大自然資源，不再浪費與濫用，我們現在不但可以享受這些地球資源和環境，亦讓未來人類和地球生生不息。



Children's Thematic Exhibition of Summer Reading Month 2014

We have been living in a rich material world for the past century. Due to the scientific and technological advancement, many more natural resources are being exploiting. Moreover, with the enhancement of production technology, we produce huge amount of goods to improve our quality of living. But, dear kids, have you ever thought about people in future can still enjoy everything we have today? Is earth able to support our convenient lifestyle today continuously? We must learn to cherish the scarce resources on earth, carefully protecting environment, reducing adverse impacts on earth, so as to sustain a better environment, a better home, for future generation.

The children's thematic exhibition of Summer Reading Month 2014 is themed on "The Earth and I: Sustainable Development". From the aspects of "Clothing", "Food", "Living" and "Transportation", children are guided to see how our small habits in living is affecting the environment. The earth will be healthier if we can make smart choices.

In the "Clothing" zone, we will learn how to buy, use and dispose clothes wisely. The "Food" zone tells us about food production, organic farming and food waste, and their relationships with the environment, so as to know the importance of healthy diets. Saving energy, reuse and recycling used things and environmental home design are shown in the "Living" zone that we are able to find out ways of improving the environment from changing our tiny living habits. In the "Transportation" zone, we will see the impacts of transportation vehicles, shopping bags, and excessive personal electronic gadgets on the environment. Carbon Footprints can be reduced in travel if we care more about the environment.

Dear kids, let's start using resources wisely so that we can contribute to the sustainable and healthy development of human beings and the earth.





根據世界自然基金會的調查，香港人平均每月購買一至五件衣服。大家在購買前，有沒有想過對環境的影響？大家知道嗎？原來一件衣服由生產、加工到運輸，會消耗大量能源、產生廢氣和廢水等污染物。舊衣物又要如何處理，才可減少環境污染？本部份介紹「衣」，讓大家了解衣物對環境的影響，以及看看怎樣可以穿著簡約又環保！

Hongkongers buy one to five pieces of clothing on average every month according to a survey by the World Wide Fund for Nature (WWF). Have you ever thought about their impact on the environment before buying them? Do you know the production, processing and transportation of clothes will consume a lot of energy and produce waste gas and water, and other pollutants? Do you know how to dispose used clothing in an eco-friendly manner? This part tells about the impact of clothing on the environment and recommends simple and eco-friendly clothing.



小朋友，不合身或不會再穿著的衣物，你會如何處理？

Dear kids, what will you do with the clothes that you do not need or want?

What clothes are good for health and the environment?

衣著要健康又環保, 你要知道!

說起健康與保護身體，焦點常放在食品安全及營養上，其實，衣服對人體健康同樣重要。而衣服上的每根纖維，都是地球的重要資源；不必要的大量生產，不但浪費能源，更會造成更多污染，所以，我們要注意衣物對地球健康的影響。

Regarding health and body protection, we usually focus on food safety and nutrition. In fact, clothing will also affect health. Every fibre in our clothes is important resource on earth. Unnecessary mass production not only wastes energy but also causes more pollution. So, we need to pay attention to the impact of clothing on earth's health.



小朋友，原來衣服會影響
我們和地球的健康，
你會如何選擇？

Dear kids, what is your
choice of clothes that
will affect your health
and the earth?





要穿著健康與環保，就要由源頭做起，材料選得對，健康有保障。
Production of healthy and eco-friendly clothes should start from the selection of the right raw materials, which is good for health.

- 選擇天然纖維，例如羊毛、純棉或麻等，耐用又舒適。
Choose natural fibre, such as wool, pure cotton or flax, which is durable and comfortable.
- 選擇有機物料，不但碳排放量低，而且容易被循環再用。
Choose organic materials, which leave fewer carbon footprints and are easily recyclable.
- 選擇淺色或淨色的衣服，或使用天然染料的衣物，不但穿著舒服，而且低碳環保。
Choose light- or solid-coloured clothes or clothes dyed with natural materials, which are not only comfortable but also eco-friendly.
- 選用本色或淺色天然纖維製成的內衣，避免染料對人體造成化學過敏。
Choose underwear made from natural- or light-coloured natural fibre to avoid allergy caused by chemical dyes.
- 避免選擇人造及化學纖維的衣服。此類衣物透氣度及吸汗度不高，影響皮膚呼吸和汗水蒸發，容易刺激皮膚導致敏感。人造及化學纖維是由石油等原料人工合成，製造過程較天然纖維消耗更多的能源及產生更多的污染。
Avoid wearing clothes made from artificial and chemical fibre that may affect skin breath and sweat evaporation, and may cause skin irritation due to low permeability and absorption of perspiration. Artificial and chemical fibre is synthesized from petroleum-based materials, and its production consumes more energy and produces more pollution than natural fibre.



了解衣物纖維

Getting to know about fibre in clothes

衣服，猶如我們的第二層皮膚，我們必須了解它們的特性，適當保養，才可好好利用衣物來保護我們。

Clothes, like our second skin, we need to learn about clothing fibres and to properly handle them for best protection of our body.



天然纖維保養須知
Tips for maintenance:
Natural fibre

羊毛 Wool

忌熱水、忌機洗，易縮水，
易被蟲蛀，不可漂白

Do not wash with hot water or
washing machines; easy to shrink and
prone to moth damage;
and do not bleach

棉 Cotton

吸汗性強，易皺、可漂
白，易收縮但可復原

Strong absorption of perspiration;
easy to crease; bleaching allowed;
and easy to shrink but restorable

羽毛 Feathers

衣物柔順劑等化學劑
會破壞羽毛的防水性
及保暖性

Chemicals like fabric softener may
damage the waterproof and heat
retention performance of feathers

麻 Flax

不易磨損、易皺、
可漂白、可高溫熨燙

Not easy to wear out; easy to
wrinkle; and bleaching and hot
ironing allowed

絲 Silk

濕時容易磨損，易受汗侵
蝕，易脫色，不可漂白

Easy to wear out when wet;
easy to be eroded by perspiration;
easy to discolour; and do not bleach



人造纖維保養須知
Tips for maintenance:
Artificial fibre

合成棉花
Synthetic cotton

不易磨損，不易脫色，
可高溫熨燙但不可高溫洗滌
Not easy to become worn or discolour;
hot ironing allowed; but do not
wash at high temperature

聚丙烯系纖維
Polypropylene fibre

不易磨損，不易脫色，
應低溫烘乾及熨燙
Not easy to wear or discolour;
and iron and dry at low temperature

彈性纖維
Elastic fibre

不易皺，易受甲油、
香水及含酒精物質侵蝕
Not easy to wrinkle; but easy to be
eroded by nail polish, perfume and
substances containing alcohol

人造絲
Artificial silk

濕時容易磨損，
水洗容易變形
Become worn easily when
wet; and easy to deform
when washed with water

尼龍
Nylon

不易磨損，有彈性，
易變黃，應低溫熨燙
Not easy to become worn;
flexible; easy to fade;
and iron at low temperature

聚酯纖維
Polyester fibre

不易磨損，有彈性，
不易脫色，可耐高溫
Not easy to become worn and become
yellowish; flexible; not easy to discolour;
resistant to high temperature

Energy-saving
節能

洗衣法
Methods for Washing Clothes

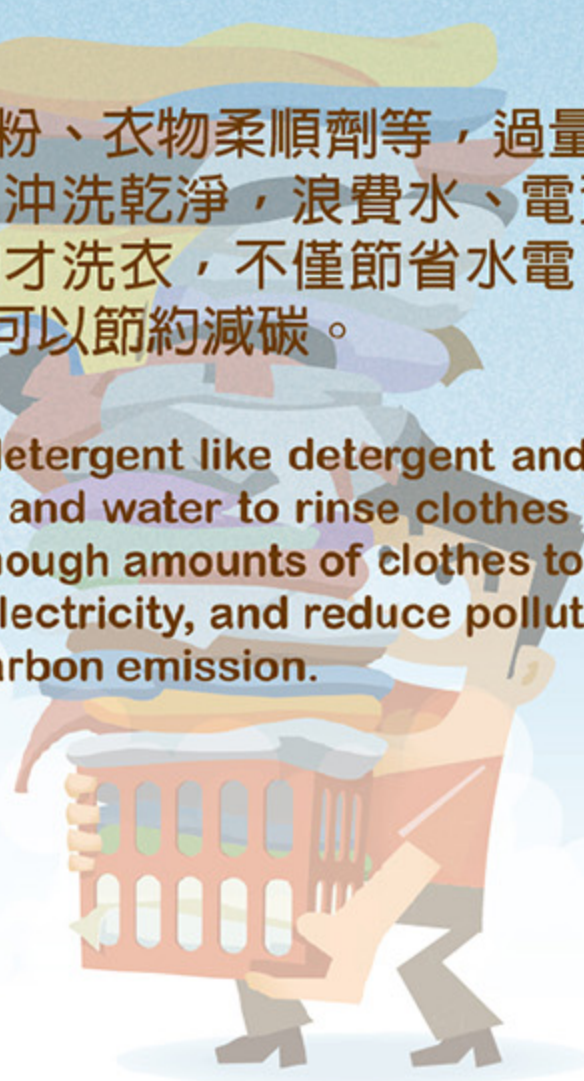


少用洗滌劑、減少洗衣次數

Use less detergent, store-up clothes for washing

洗滌劑，例如洗衣粉、衣物柔順劑等，過量使用不但造成浪費，還需要更長時間及更多清水才可沖洗乾淨，浪費水、電資源。我們可以盡量減少洗衣的次數，儲滿一機衣物才洗衣，不僅節省水電，還能減少洗滌劑的污染。合理使用，杜絕浪費，就可以節約減碳。

If we use too much detergent like detergent and fabric softener, it is wasteful and need more amount of time and water to rinse clothes as well as water and electricity. We can wait until there are enough amounts of clothes to fill the washing machine. In this way, we can save water and electricity, and reduce pollution by detergent. Such that we can save energy and reduce carbon emission.





手洗代替機洗

Wash by hand instead of machine

無可否認，洗衣機讓生活便利，但每次洗衣都需要耗用大量能源。所以，如果骯髒的衣物不多，或衣服只是一角被弄污了，我們可用手洗代替機洗，減少浪費水和電。

No doubt washing machines make life easier, but they consume lots of energy. So, if there are not many dirty clothes or only a part of the clothes is dirty, we can wash by hand instead of washing machine in order to save water and electricity.



調節水溫

Adjust water temperature

洗衣過程耗用的電力，約有90%用於把水加熱。冷水洗衣可節省能源，還不易損壞衣物。因此，在清洗白色衣物時才使用熱水，清洗深色及顏色衣物時則不要用熱水。

About 90% of the electricity consumed by washing machine is to heat up water. If we wash clothes with cold water, we can save energy and the clothes may not be damaged easily. So, we should use hot water for washing white clothes only and try not to use hot water when washing dark-coloured and coloured clothes.

選用節能洗衣機

Choose energy-saving washing machines

要選擇配合家居需要的洗衣機。如日常清洗的衣物不多，可選擇耗水量較少的小型洗衣機，有效節電、節水、減碳。另外，選購洗衣機時應留意能源標籤，比較耗水量及了解能源效益表現。第一級能源效益的洗衣機比第5級的可節省40%能源。越高能源效益的洗衣機消耗越少能源，更能保護環境。

Choose washing machines according to family needs. If we do not have many clothes to wash, we can choose small washing machines which consume less water. In this way, we can save water and electricity, and reduce carbon emission. Moreover, when choosing a washing machine, we should pay attention to the energy label, compare water consumption and learn about energy efficiency. Washing machines labeled with Energy Efficiency Grade 1 consume 40% less energy than the Grade 5. Washing machines of higher energy efficiency consume less energy and is more friendly to the environment.

多自然晾乾、少烘乾

Dry your clothes on the line instead of using dryers

現今的洗衣機多配備乾衣功能，可以縮短乾衣時間，但同時亦消耗大量電力。晴天時，好好利用陽光晾乾衣服，這大自然的免費能源，不但可以節能減碳，又能殺菌，衣物也沒烘乾的那麼皺呢！

Today, most washing machines with the function of dryers can shorten the time of drying clothes but they also consume much electricity. In sunny days, we can dry clothes in the air. In this way, we can save energy and reduce carbon emission. In addition, sunlight can help kill germs and do not crumple clothes.























小朋友，你願意為保護環境而親手洗滌自己的衣服嗎？

Dear kids, are you willing to wash your clothes by hand to protect the environment?



Laundry symbols of clothes 衣服的洗滌標示

 水洗 WASHING	 只可手洗 Hand wash only	 機洗水溫不高於攝氏50°C (數字為最高洗滌溫度) (Machine wash in water not exceeding 50°C (the figure is the maximum temperature for washing))	 不可水洗 Do not wash	
 乾洗 DRY CLEANING	 可乾洗 Dry cleanable	 不可乾洗 Do not dry clean		
 漂白 BLEACHING	 可以漂白 Bleaching allowed	 不可漂白 Do not Bleach		
 熨燙 IRONING	   低溫熨燙 (一點代表低溫、兩點代表中溫、三點代表高溫) Iron at low temperature (one point stands for low temperature, two points for medium temperature, and three points for high temperature)	 不可熨燙 Do not iron		
 乾燥 DRYING	 可烘乾 Tumble dry allowed	 不可烘乾 Do not tumble dry	 平鋪晾乾 Dry flat	 直接滴乾 Drip dry



小朋友，家裡需要洗衣時，
你們會幫手檢查衣服的洗滌標示，
選擇最合適的洗滌方法嗎？

Dear kids, will you help check the
laundry symbol and choose the
most suitable way of washing?



Wise shopping 購物精明眼



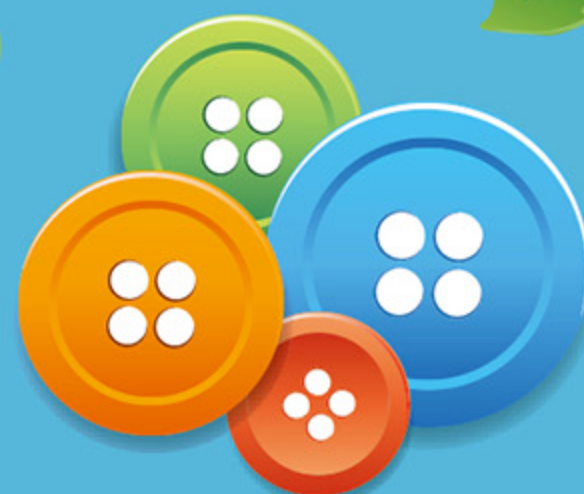
大家想一想，你會不會：不停添購新衣，貪新忘舊，嫌棄和隨意丟掉舊衣物，浪費資源？購買前不妨細心考慮：我真的需要它嗎？我們可以怎樣改正「買、買、買」的心態？

Did you buy new clothes for "want", discard the old easily, and waste the resources? So, think it over before shopping: do I really need it? How can I change the mindset of "to buy, to buy and to buy"?



小朋友，你的購物清單包括那些物品？符合環保嗎？
Dear kids, What is your list for shopping? Are they environmentally friendly?

I'm still useful! 我還是有用的!



不少被丟棄的衣物，其實仍然可用，被掉進垃圾桶實在浪費。只要我們花點心思，便可以為它們「變身」，延長它們的使用壽命，更好地利用地球資源！

It's really a pity to throw away clothes that are still useful. Be creative, we can "turn" them into other uses, that may extend their lifetime and save the resources of our planet!

把不合身的衣物留給弟妹或轉贈給年齡相約的親友。
Leave unfit clothes to younger sisters or brothers or give them to friends of your age.

如果衣物有輕微破損，可通過修補或翻新，延續它們的壽命。
Mend slightly worn clothes to extend their lifetime.

小朋友特別喜歡為心愛的洋娃娃打扮，家中不妨留備一些舊衣服備用。
Keep some old clothes to dress up your beloved dolls

支持舊衣回收，把乾淨且質量好的舊衣物放進舊衣回收箱；或透過慈善團體轉送給有需要人士，減少資源浪費。
Recycle old clothes; put clean and good old clothes into recycling bins; or give to people in need through the charity in order to reduce waste of resources.

自行把舊衣服改裝翻新，例如用顏色相近的布塊修補，挑選合適的布料可作為拼布的手工藝材料。
Mend your clothes with cloth of similar colours or turn them into patchworks if possible.



小朋友，你會怎樣處理不合身的衣服呢？
Dear kids, what will you do with your unfit clothes?

環保小提議

Tips on
Environmental Protection

利用陽光晾乾衣服，
不用燙但仍然整潔，
可雙重省電。

Drying clothes with sunlight not
only frees you from ironing but
also saves electricity.



自備購物袋，口袋裡隨身
帶備可循環再用的購物
袋。向塑膠袋說「不」。

Always bring your recyclable shopping
bag. Say "no" to plastic bags.



熱天穿著涼爽、輕
便、淺色及透氣度
高的衣服。

Wear cool, light, breathable
and light-coloured clothes in
hot summer days.





小朋友，你願意以手帕代替紙巾，為保護環境出一分力嗎？為什麼？

Dear kids, will you take part in protecting the environment by using handkerchiefs instead of tissues?



經常把衣服折疊好或掛起，收納在衣櫥裡，保持清潔及乾爽，以免沾上塵埃。

Take care of your clothes, put or hang them in the wardrobe to keep clean and dry.

隨身攜帶手帕，減少使用紙巾。

Use a handkerchief instead of paper tissues.



冷天多穿衣服，必要時才開暖爐或暖風機。

Put on more clothes before turning on the heater in cold days.

學習不同的配搭，將每件衣服穿出不同的風格，增加衣服的使用率。

Learn to mix and match clothes to make the most use of them.



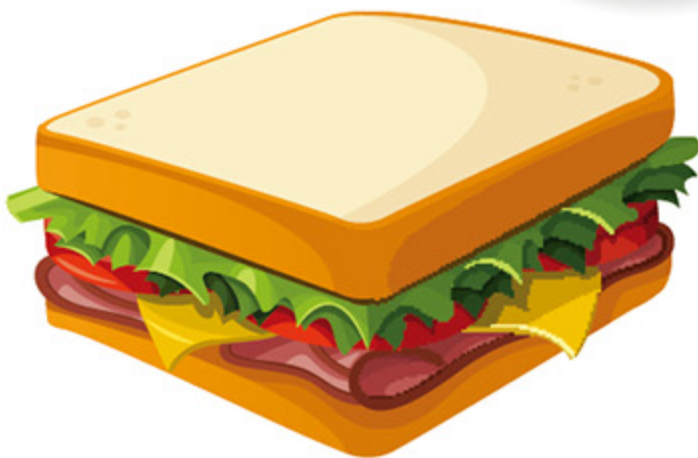
食 Food

食物與地球環境關係密切。食物的生產、運輸以至消費，都會消耗地球資源，同時產生碳排放，影響生態。有機耕種、低碳飲食與減少廚餘，都是保護環境的方法。讓我們養成「惜食」的好習慣，同時保持我們的身體與地球的健康！

Food is closely related to the environment. The production, transportation and consumption of food consume the earth's resources and produce carbon emission to affect the environment. Organic farming, low-carbon diet and reduction of food waste are good ways of protecting the environment. Let us eat wisely to keep good health of our bodies and the earth!



小朋友，你會如何實行
「惜食」的好習慣？
Dear kids, how can you
eat wisely?



一粥一飯， 與環境息息相關

**Every bite is closely
affecting the environment**

小朋友，吃飯的時候有沒有想過，桌上的飯菜和地球環境有甚麼關係呢？現在我們主要採用機械生產糧食，令糧食產量大幅提升。可是，大規模的糧食生產，會對地球的可持續發展構成巨大壓力。機械式生產糧食是需要消耗大量資源：用水灌溉農地或飼養牲畜、利用能源驅動機械農具和運輸工具，還會使用農藥及化學肥料，於是造成地下水的污染，產生溫室氣體，影響地球的生態環境。我們的糧食既然來自地球，我們也有責任保護地球的生態啊！

Dear kids, have you ever thought about the relationship between our food and earth's environment? Machine, high rate of machine used in farms today can greatly increase crop output. However, mass production of crops will have huge pressure on the sustainability development of earth. Mechanical grain production consumes large amounts of resources: water to irrigate farmland or raise cattles, energy for agricultural machinery and vehicles, and also using pesticides and chemical fertilizers. These activities pollute underground water, produce greenhouse gases and affect the eco-environment of our planet. We are responsible for protecting the eco-environment of earth, our food source.



機械式農業 Machine-based agriculture

耗用水資源

以美國為例，大約80%的用水，都是用來灌溉農地或飼養牲口。過度開採水資源，使地下水源鹽化，導致濕地流失。

In the US, about 80% of water consumption is used to irrigate farmland or raise cattles. Excessive exploration of water resources has resulted in salination of water sources and loss of wetlands.



使用化學肥料及農藥

鉀肥和磷酸鹽肥料來自不可再生的礦資源，而氮肥則是利用石油製做出來的。這些化學肥料與農藥在灌溉的過程中滲入泥土深處，污染地下水源。

Potassium and phosphate fertilizers come from non-renewable mineral resources, while nitrogen is made using petroleum. These chemical fertilizers and pesticides will soak deep into the soil during irrigation and pollute the ground water.

耗用能源

農業生產消耗的能源，較20年前倍增。農場需要能源來推動機械農具、施肥、提供照明、為牲畜的住處調節溫度。此外，糧食的包裝和運輸也需要消耗能源。

Energy consumed during agricultural production has doubled in the past 20 years. In farms, energy is needed for agricultural machinery and fertilizing crops, lighting and controlling temperature of the cattle sheds. Moreover, grain packing and transporting also consume energy.



不同食物的碳足印

Carbon Footprint of different Food



科學家曾以瑞典為試點，比較本土生產和進口的食物產生的碳排放量，以了解食物對環境的影響。科學家們有這樣的發現：

Scientists conducted a Sweden-based comparison of carbon emissions from its home-grown and imported food to know the impact of food on the environment. They found that:




蔬果類食物的碳排放遠比肉類為低。

Carbon emission of vegetables and fruits is far less than that of meat.



由外地經由船運入口的食物，二氧化碳的排量較本土食物為高。

CO₂ emission of imported food by ship is higher than that of home-grown food.



蔬果類食物不會產生甲烷，但肉類食物卻會排放甲烷，當中以牛肉最為嚴重。

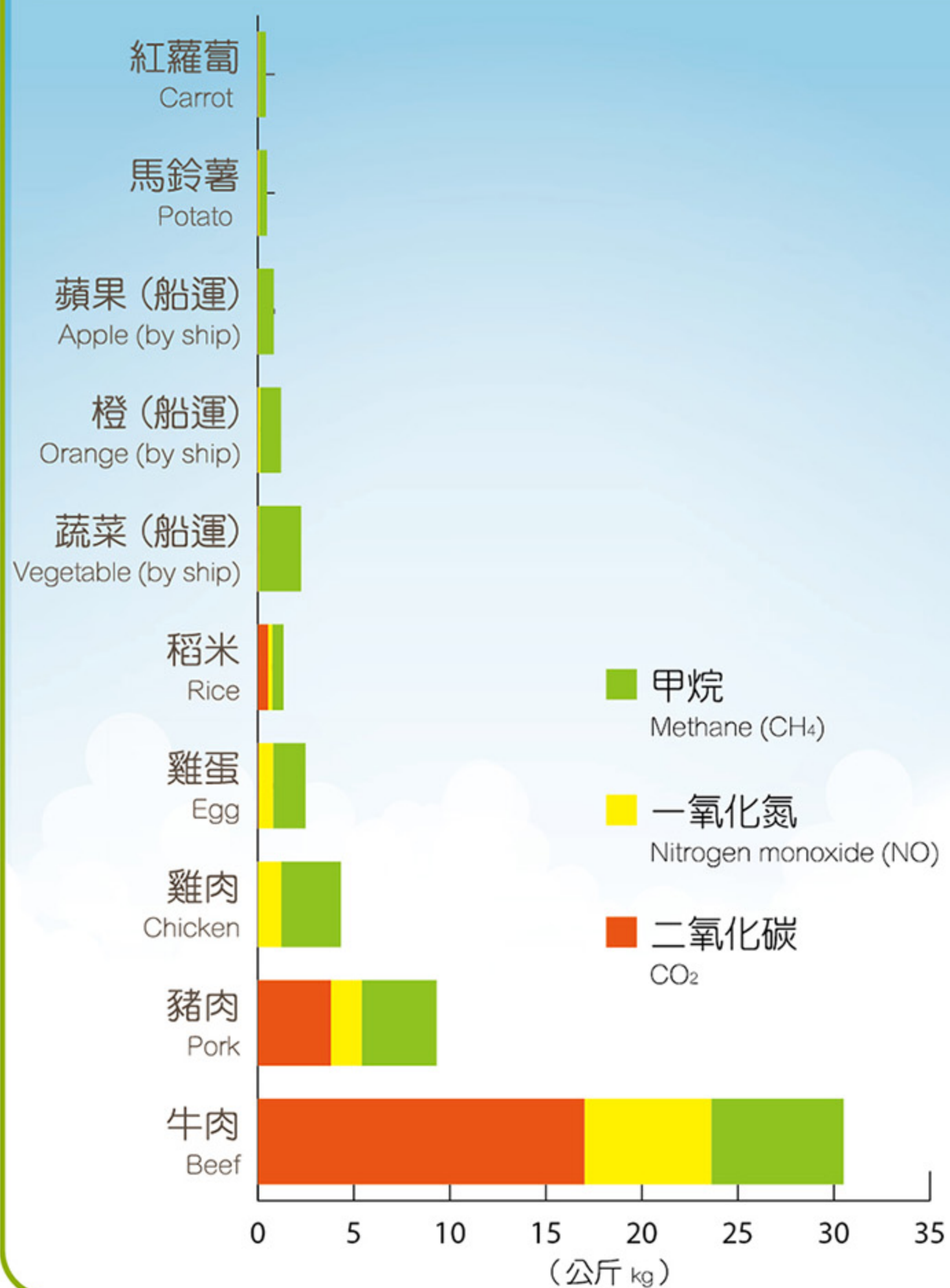
Vegetables and fruits don't produce methane (CH₄), but meat does, in particular beef.



水稻田消耗很多氧氣，令土壤中的微生物增生，製造大量甲烷。不過，種植稻米的甲烷排放量，仍然少於肉類。

Paddy fields consume lots of oxygen, helping microorganisms grow in the soil, during which a large amount of CH₄ is produced. However, CH₄ emission from rice plantation is still lower than that of meat production.

每公斤食物的碳排放(公斤) Carbon footprint of food per kilo gram



溫室氣候是我們 「吃」出來的嗎？

Does our “eating”
cause the greenhouse climate?

食物影響氣候，因為在生產不同類型食物的過程中，會排放不同種類的溫室氣體。

舉例來說，大部份農作物的生產只會排放二氧化碳和一氧化氮，但是生產肉類食物和稻米卻會產生甲烷；其中牛和羊排放甲烷比其他動物多。此外，餵飼牲畜需要種植飼料。獲得一公斤的肉類，需要種植超過一公斤的糧食，因而增加二氧化碳和一氧化氮的排放。相反，如果我們多吃菜少吃肉，我們對肉類的需求將會減少，溫室氣體的排放也會減少。因此，我們選擇吃肉還是吃菜，也會影響地球氣候。

Food can affect the climate because different greenhouse gases will be emitted during production of different food.

For example, production of most crops will only emit CO_2 and NO , but production of meat and rice will produce CH_4 ; in particular, CH_4 emission from production of beef and mutton is higher than that from production of other meat. Besides, cattle feeding requires crop production. Over one kilo of crop needs to be grown for production of one kilo of meat, which increases emissions of CO_2 and NO . On the contrary, if we eat vegetables more and meat less, our demand for meat will decrease accordingly and greenhouse gas emissions will also fall. So, to eat meat or vegetable will affect the earth's climate.



蔬果類食物
Vegetables and fruits

雞肉、豬肉
Chicken and pork

牛肉
Beef

溫室氣體
Green House Gas

「有機耕種」 "Organic farming" 保護環境 for environmental protection

「有機」食物是指食物根據有機生產標準生產。「有機生產標準」，是根據聯合國糧食及農業組織和世界衛生組織聯合設立的食物法典委員會所訂定。有機耕種最大的特點是避免使用人工合成肥料或農藥，從而減低對空氣、土壤和水源的污染，它的最終目標是：

"Organic" food refers to food produced according to organic production standards which are set up according to Codex Alimentarius Commission, that is a commission jointly established by Food and Agriculture Organization of the United Nations and World Health Organization. Most typically, organic farming uses no synthetic fertilizers or pesticides, reducing pollution to the air, soil and water. Organic farming aims to:

- 維持生態系統的生物多樣性
Maintain biodiversity of ecosystem

- 維護土地肥沃
Keep the land fertile

- 採用再生資源
Use renewable resources

- 循環再用植物和動物的廢料，變成養份回歸大地
Recycle plant residues and animal waste to plough into the soil as nutrient

- 鼓勵善用自然資源耕種，減低污染
Encourage reasonable use of natural resources for farming and to reduce pollution

大家看看傳統機械式農業生產與有機耕種對環境的影響：

Here is a comparison between the environmental impacts of conventional farming and organic farming:

傳統機械式的農業生產

Conventional farming


-  需依賴石油來推動，在作業的過程中會產生溫室氣體。
Relies on petroleum and produces greenhouse gases in production process
-  大量使用石油化學產品如化肥、農藥、除草劑等，不但會污染環境，而且經食物鏈進入人體後會影響我們的健康。
Uses large amount of petrochemicals like chemical fertilizers, pesticides, herbicides, etc., which pollute the environment and affect our health after they go into our body through the food chain.
-  長期使用化學肥料，使土壤無法吸收有機物質，也會影響土地的質量。
Affects soil quality as long-term use of chemical fertilizer will leave the soil unable to absorb organic substances.
-  於同一區域種植單一作物，會排除生物多樣性的生存空間，不利生物種屬的繁衍。
Plants a single crop in one area, which leaves no space for biodiversity and is unfavourable for the reproduction of biological species.
-  農閑時荒廢土地，也較容易受到風雨侵蝕，令沃土消失。
Having farmland idle in slack season, and consequently, which tends to be eroded by wind and rain, and losing fertility.
-  透過品種改良、甚至是基因改造來改變作物適應自然的能力，干預生物種屬原有的生長特徵。
Changes crops' adaptability to nature by breed improvement or even genetic modification, thus intervening in the original growth characteristics of biological species.

有機耕種


Organic farming

 依靠人力除草，盡量避免使用大型耕種機械，減少於農作物生產過程中的碳排放。

Weeds the fields manually, tries to avoid large farming machines, thereby reducing carbon emissions in crop production.

 避免使用化學性肥料和農藥，減低對環境和食物鏈的污染。

Avoids chemical fertilizers and pesticides, thereby reducing pollution to the environment and food chain.

 採用順乎自然的農業生產方式，農作物在自然環境中生長，符合生態循環規律，從而減少對自然環境造成的負面影響。

Observes the law of nature in farming, so that crops grow in natural environment and follows an ecological cycle, thus reducing adverse impact on the natural environment.

 採用輪作方式耕種，降低對土質及生物種屬多樣性的損害。

Grows different crops in rotation, thus reducing the harm to soil quality and biodiversity.

 強調混合栽培、自然選種，減少對生物種屬的人為干預。

Advocates mixed cultivation and natural seed selection, thus reducing human intervention in biological species.

小朋友，你會如何選擇？

Dear kids: Will you choose organic farming instead of the conventional method? Why?



「有機」放大鏡：Magnifying "organic"!

沒有化學肥料
和農藥 =
有機食物？

free from chemical fertilizers
and pesticides = organic food?

當然不是！正確點說，「有機食物」指從生產、加工以至包裝、貯存和運輸等食物生產的階段，均按照有機生產標準的食物。同時，「有機食物」的概念也可以適用於肉類食品。那麼甚麼是「有機食物」呢？以下是其中一些原則：

Of course not! In fact, "organic food" refers to ... food produced, processed, packaged, stored and transported according to organic production standards. The concept "organic food" also applies to meat products. So, what is "organic food"? Here are some of the principles:

後期加工及運輸

Post-processing and transport

盛載有機食品的容器必需是清潔的、
而且是可適用於
有機食品等等

Containers suitable for
holding organic food must
be clean and
appropriate, etc.

應避免有機食品接觸到一些
在生產過程中不容許使用的物質
Try to keep organic food away from materials
forbidden in organic production

利用能夠被生物降解
或可以循環再用的
物料來包裝食物

Package food with
biodegradable or recyclable
materials

無論是貯存還是運輸，有機食品
都不應該和非有機食品混合存放

Do not put organic food side by side with non-organic
food no matter in storage or in transport

讓牲畜獲得潔淨的食水

Make sure livestock have access to clean food and water

不使用抗生素、生長激素

Do not use antibiotics or growth hormone

有機肉類的生產

Production of meat products

自然繁殖，減低牲畜的壓力和疾病

Let domestic animals reproduce naturally to lower their pressure and chances of becoming ill

不用肉類食物餵飼牲畜

Do not feed meat to livestock

盡量利用有機糧食餵飼動物

Try to feed animals on organic food

處理牲畜的排泄物時需要減低對土壤和水源的污染等等

Try not to contaminate soil and water when dealing with waste of livestock, etc.

為牲畜提供足夠的活動空間

Provide enough space for livestock to move about

有機蔬果的種植

Growing of organic vegetables and fruits

不應使用有機農田再作傳統機械式耕種等等

Avoid using conventional mechanical means on organic farms, etc.

避免使用化學性防蟲劑或肥料

Avoid chemical anti-insect agents or fertilizers

採用輪作來護養土地，而非種植單一作物

Maintain soil quality through crop rotation rather than planting a single crop

使用有機的動植物堆肥

Fertilize the land with organic mixture of plant residues and animal manure

不使用抗生素、生長激素或其他添加劑

Do not use antibiotics, growth hormone or other additives

利用生物方法防治蟲害，例如引入捕食者昆蟲或寄生生物

Control pests with biological methods, for example, introducing pest predator or parasites

人工除草，避免使用機械化操作如大耕耘機或聯合收割機

Weed the fields manually, avoid machines like large cultivator or combine harvester

光看外表 分辨不了？認識 Organic or non-organic? What is “Organic certification”

Know about 有機認證



利用有機方法生產的食物，在外貌上是和一般食物無異。那麼我們怎樣區別呢？上世紀90年代開始，歐洲聯盟為了方便民衆識別有機食品，規定所有有機食品，都必需取得「有機認證」。世界各地的政府亦逐漸制訂相關的法則，訂明取得有機認證所需要符合的條件。

現時，不同國家或地區會分別由指定的政府部門或私人認證機構負責檢查農場，確定農場符合當地法定的有機標準，然後再向農民及食品加工製造商發出「有機認證」。不過，世界上暫時並沒有劃一的準則來界定「有機食物」。因此，我們購買有機食物時，會見到形形色色的有機認證，我們也需要瞭解不同認證的背後採納那些有機準則。

Since foods produced with organic methods look the same as ordinary foods, how do we tell organic foods from non-organic ones? To help people recognize organic foods, the European Union stipulates that starting from the 1990s, all organic foods must get “organic certification”. Governments from all over the world also begin to make relevant rules stipulating the qualifications for getting organic certification.

Now, different countries or regions have specific government departments or private certification agencies that are responsible for inspecting farms and making sure farms meet local organic standards before they grant farmers and food processing companies “organic certification”. However, at present there is not a unified definition for “organic food” in the world. So, when buying organic food, we also need to know the organic standards behind different certifications.



知多一點點 1

Know more

香港目前共有兩個有機認證組織，即香港有機資源中心和香港有機認證中心。如果大家想翻查一下本地有機農場的資料，可以到上述兩個有機認證機構的網頁查閱。

At present there are two organic certification organizations in Hong Kong, which are Hong Kong Organic Resource Centre and Hong Kong Organic Certification Centre. We can find information about local organic farms on the websites of the two organizations.

香港有機資源中心

Hong Kong Organic Resource Centre

<http://www.hkorc.org/tc/index.php>

香港有機認證中心

Hong Kong Organic Certification Centre

<http://www.hkgardenfarm.org/>



知多一點點²

Know more

一些在本港常見有機認證

Some common organic certifications in Hong Kong



香港有機認證中心
Hong Kong Organic Certification Centre

香港有機認證(香港有機認證中心)

Organic Certification in Hong Kong
(Hong Kong Organic Certification Centre)



香港有機認證(香港有機資源中心)

Organic Certification in Hong Kong
(Hong Kong Organic Resource Centre)



中國有機認證

Organic Certification in China



美國有機認證

Organic Certification in the U.S.



加拿大有機認證

Organic Certification in Canada



歐盟有機認證

Organic Certification in European Union



魚與熊掌：平衡健康與環境的飲食

Health or environment: A balanced diet for health and environment



個人健康和地球環境同樣重要，那麼我們應該怎樣選擇呢？這裏共有3個建議供大家參考：

Since our health is as important as global environment, how can we make a choice? Here are 3 suggestions:

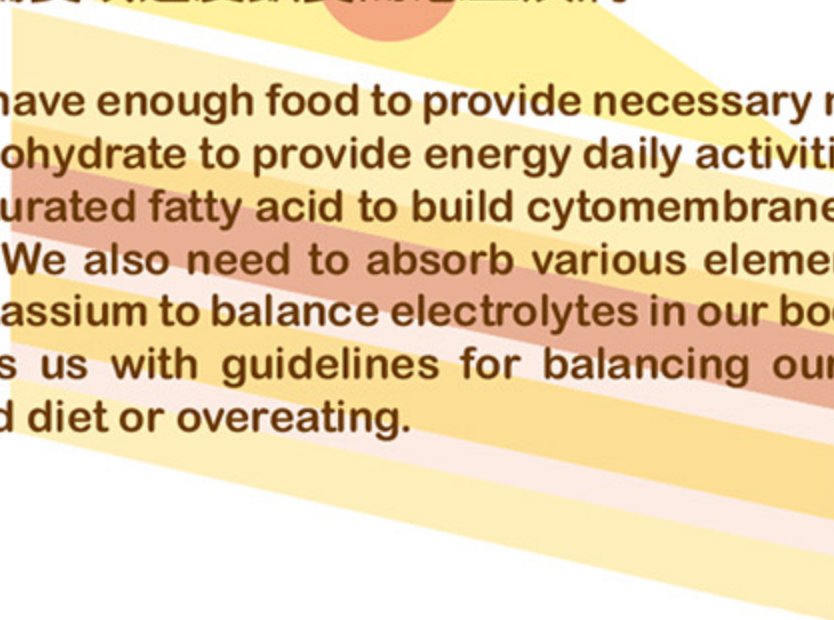
1 健康為本

Focusing on health



要吃得健康，最重要是有適量食物提供身體所需的養份。例如我們需要碳水化合物提供能量以維持一整天的活動、維他命和蛋白質維持細胞健康、不飽和脂肪酸來構建細胞膜、纖維幫助腸道蠕動，也需要吸收不同的元素例如鈣來維持骨骼健康、鉀來平衡體內的電解質等等。食物金字塔(見下圖)為我們提供均衡飲食的指引，避免因為偏食或過度飲食而患上疾病。

To eat healthily, we should have enough food to provide necessary nutrition for our bodies. For instance, we need carbohydrate to provide energy daily activities, vitamin and protein to keep cells healthy, unsaturated fatty acid to build cytomembrane and fibres to maintain intestinal tract movement. We also need to absorb various elements such as calcium to keep bones healthy and potassium to balance electrolytes in our bodies. The Food Pyramid (as shown below) provides us with guidelines for balancing our diets and preventing diseases due to imbalanced diet or overeating.



健康飲食金字塔 The Food Pyramid

吃最少
Eat less

脂肪、油、鹽及糖
fat, oil, salt and sugar



註：每天應喝6至8杯流質飲品，如開水、清茶和清湯。

Note: You should drink 6-8 glasses of water/tea/soup, etc. every day

吃適量
Eat moderately

牛奶、奶類產品及芝士類
milk, dairy products and cheese group



瘦肉、家禽類、魚類、豆及蛋類
meat, poultry, fish, bean and egg group

吃多些
Eat more

蔬菜及瓜類
vegetables group



水果類
fruit group

吃最多
Eat most

穀類、麵包、飯、粉及麵
grains, cereals, bread, rice and pasta



2 低碳飲食 Low-carbon diet

要地球健康，我們在選擇食物和烹調的時候，可以多花一點心思。例如：
To keep the earth healthy, we can pay more attention to the choice of food and cooking. For example:



選用本地生產的食材：本地食材能省卻長途運輸時所消耗的能源，減低二氧化碳的排放；也可避免長途運輸食物所需的包裝和冷藏程序，從而減少固體廢物和空氣的污染。

Select local foods: Eating local foods can save energy consumed in long-distance transportation, reducing the emission of CO₂ and packing and cold storage needed in long-distance transportation, thus reducing solid waste and air pollution.



選用有機生產的食材：有機食材在生產的時候已採取既定的步驟來減低對環境的污染；

Select organic foods: Organic foods are produced following a certain procedure to reduce environmental pollution;



多菜少肉：減少對肉類的需求，可以降低甲烷的排放

More vegetables and less meat help decrease CH₄ emission.



適量煮食：不要煮過多的食物，減少剩菜可降低堆填區的負荷，也可以減低一氧化氮的排放；

Cook food appropriately: Do not cook too much food for less leftovers can decrease the load in landfills and reduce NO emission;



節能烹調：預先解凍冷藏的食物、煮食時把鍋蓋蓋上，都可以減少能源的消耗。

Energy-saving cooking: To cut down energy consumption by defrosting frozen food in advance and using lide in cooking.

事實上，在健康為本的原則下，我們也可以輕易達到節能減排的啊！
In fact, it is easy to save energy and reduce emission if we focus on health.

3

保育糧食資源 Conserve crop resources

早在2000年前，孟子已提出不用細密的魚網來捕魚，積極推廣保育糧食資源。過度捕魚或捕獵野生動物，會導致動物處於瀕危滅絕的邊緣，影響地球生態平衡。例如，鯊魚就是因為人類過度捕獵而大幅減少。因此，要保育地球，我們也應該盡一分力，不應選擇已被過度捕獵的生物作為糧食。

As early as 2,000 years ago, Mencius had proposed not to use dense nets in fishing and advocated conservation of crop resources. Overfishing or hunting wild animals will lead to extinction of species and affect the ecological balance of the earth. For example, sharks are decreasing greatly due to over-caught. Therefore, we should make our best efforts to conserve the earth, not eating those species being over-caught.

小朋友，你們可以想到其他
平衡環境和健康的方法嗎？

Dear kids, can you think of any
other ways to balance the
environment and our health?



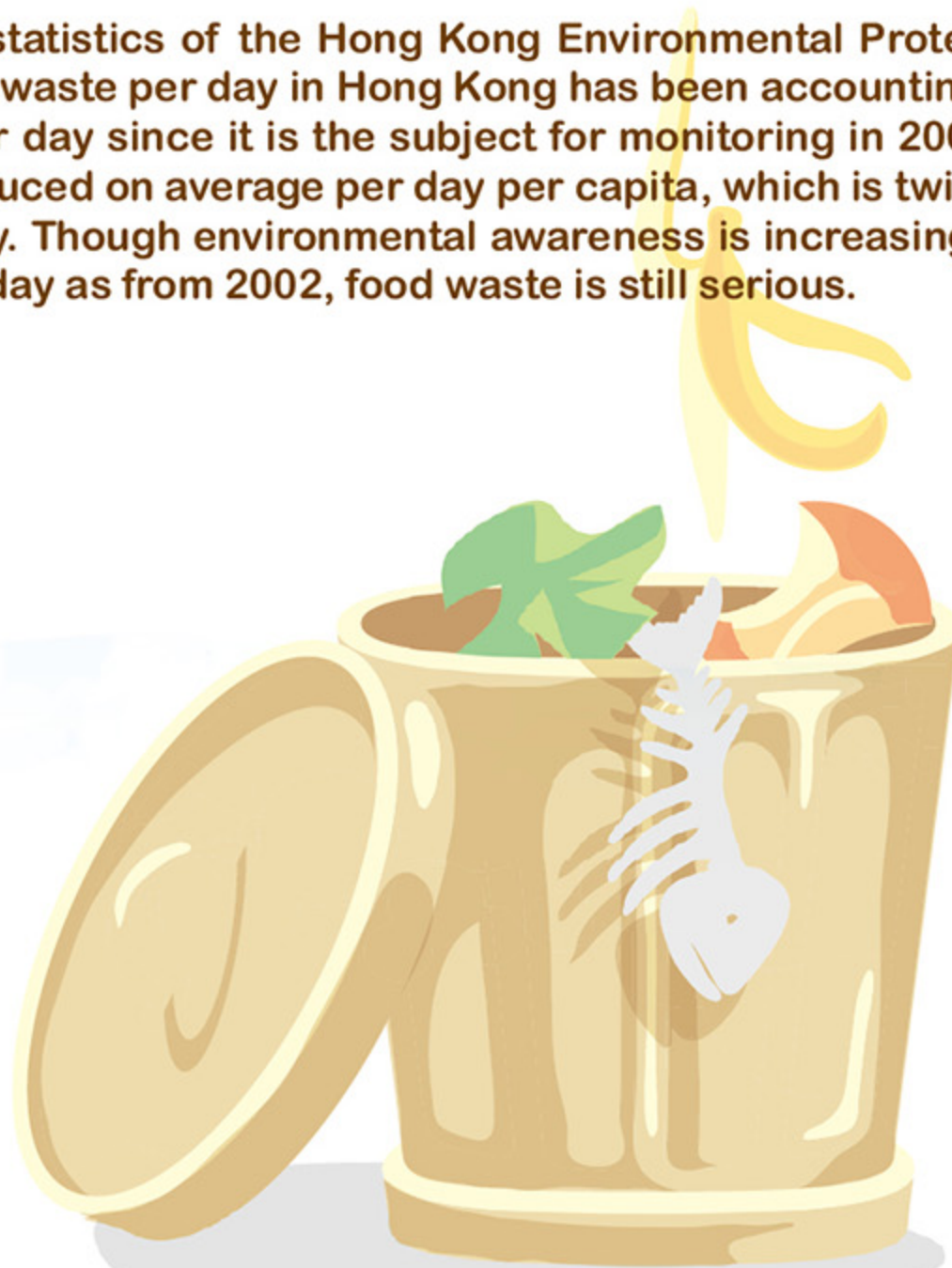
惜食篇 No Food Waste

廚餘 Food waste:

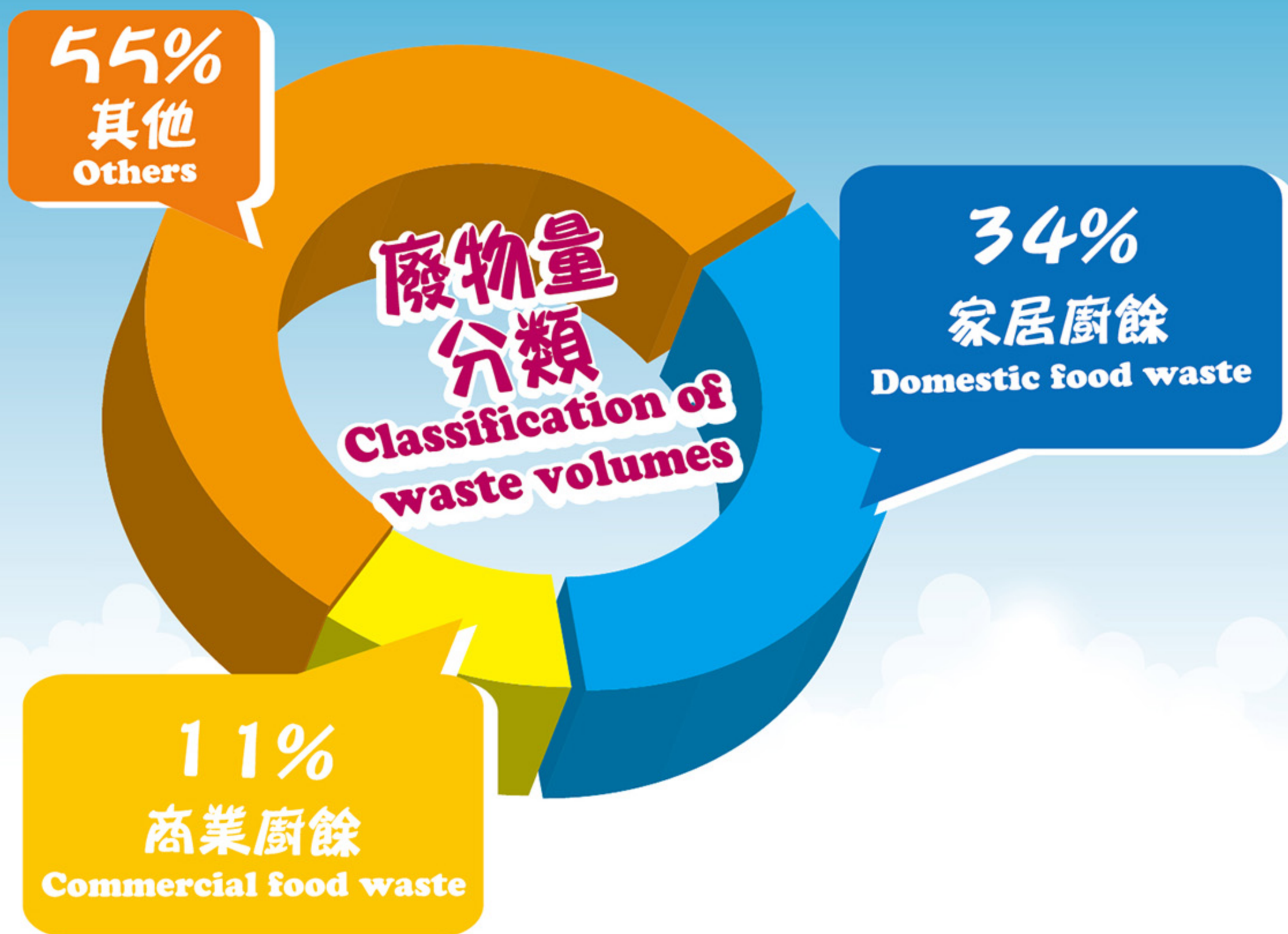
每天 3,000 噸的廚餘?
tons/day?

根據香港環境保護署的資料顯示，自從2002年廚餘被納入為監察數字後，香港每天平均棄置的廚餘總量，一直佔全日棄置總廢物量的三成以上。每人每天平均棄置0.4公斤的廚餘，以人均棄置廚餘的重量來計算，是台北市及韓國首爾的兩倍。雖然大家逐漸提高了環保意識，而近年每天平均被棄置的非廚餘廢棄物的重量已較2002年時有下降的趨勢；但是廚餘問題一直嚴重。

According to the statistics of the Hong Kong Environmental Protection Department, the average total food waste per day in Hong Kong has been accounting for more than 30% of the total waste per day since it is the subject for monitoring in 2002. Specifically, 0.4 kg food waste is produced on average per day per capita, which is twice as that in Taipei and Seoul (Korea) daily. Though environmental awareness is increasing, daily non-food waste is reducing every day as from 2002, food waste is still serious.



2012年香港平均每天棄置在堆填區的總廢物量達8,122噸：
The total waste dumped at landfills recorded 8,122 tons/day in Hong Kong in 2012:



是廚餘還是剩菜？

正確的廚餘概念！

Waste or leftover? Right concept of food waste!

究竟我們棄置的是廚餘、還是剩菜？在英國，關注廚餘問題的機構「廢置物與資源行計劃」(WRAP) 曾把廚餘分為以下三種類型：

What do we throw away of food waste or leftover? In the UK, the Waste & Resources Action Programme (WRAP) classified food waste into three types:

種類
Species

無可避免的廚餘
Unavoidable food waste

應可避免的廚餘
Possible avoidable food waste

說明
Explanation

是食物不能吃掉的部份
Inedible part of food

通常是可以進食的，只是因為口味而不常食用的部份。
Part of food that is usually edible but is not often eaten due to its taste

例子
Example

雞蛋殼 Egg shells
菠蘿皮 Pineapple peel
牛骨 Ox bone
茶葉 Tea leaves
咖啡渣 Coffee grounds
.....

麵包皮 Bread crust
馬鈴薯皮 Potato peel
芹菜葉 Celery leaves
.....



根據WRAP的分類，可避免的廚餘原是可以供我們進食的。在還未變壞或丟棄前，這些都是具有營養價值的食物。適時適量購買和食用，這些「廚餘」是可以避免的，與無可避免的廚餘的性質並不相同。

According to WRAP's classification, avoidable food waste is originally edible. Before it spoils or is thrown away, avoidable food waste is food having nutritional value. If we buy a proper amount of food and eat it at a proper time, such "food waste" can be avoided. It is different from unavoidable food waste.

種類
Species

可避免的廚餘
Avoidable food waste

說明
Explanation

可供食用的食物，但沒有吃掉
Food that is edible but is not eaten

例子
Example

早餐餐包 Breakfast rolls

吃剩了的飯 Leftovers

吃了一小塊、然後丟棄的生日蛋糕

Birthday cake that has been thrown away after a small piece was eaten

在雪櫃內存封太久的過期牛奶或罐頭

Expired milk or canned foods that have been stored too

過期未煮的肉類 Expired raw meat

.....

小朋友，大家每天製造的垃圾，有多少是無可避免的廚餘？又有多少是可避免的廚餘呢？

Dear kids, how much of the garbage you produce every day is unavoidable food waste and how much is avoidable?

? ? ? ?
Guess ?

想
一
想



惜食攻略

How to avoid food waste:

你我做得到的好習慣

Good habits that we can have

- ★ 購買食物先檢查廚櫃及雪櫃，確定購買數量，減少積存大量食品；
Before buying food, check the cupboard and refrigerator first, determine the purchase quantity and do not store up large quantities of food;
- ★ 購買食物前先寫下清單，避免因減價而買下不會食用的食物；
Before buying food, make a list first and do not buy any food on sale if you are not likely to eat it;
- ★ 先計劃好餐單，才去購買食物；
Plan your meal before shopping for food;
- ★ 善用食材，例如一尾魚的魚身既可以用來做菜，頭尾也可以同時用來煲湯；
Make good use of food materials, for example, you can use a fish's body to cook dishes and use its head and tail to make soup;
- ★ 煮食前先估算一下食用量，避免煮過多的食物；
Estimate the amount to eat before cooking and do not cook too much;
- ★ 按照包裝指示正確地貯藏食物；
Store food according to the packing instructions;
- ★ 把電冰箱的溫度調至4度，可以延長個別食物的保存限期；
Set the refrigerator temperature at 4°C to extend the shelf life of some food;
- ★ 正確認識「此日期或之前食用」(Used by)及「最佳食用日期」(Best Before)的分別，並在到期前食用食物；
Understand the difference between "used by" and "best before" and consume it before expiry;
- ★ 按先入先出的原則，食用之前購買下來的食物；
Consume food as soon as you bought;
- ★ 如購買了或獲贈了一些用不著的食材，可以轉贈鄰居或其他有需要人士。
If you have bought or got some food that you don't need, you can give them to your neighbours or other persons .

7度以下可保存限期 (單位：日)
Shelf life at a temperature below 7°C (day)

4度以下可保存限期 (單位：日)
Shelf life at a temperature below 4°C (day)



惜食有因

Why we should reduce food waste

一些看不見、捉摸不到但重要的理由

Some important reasons have to know



當我們棄置食物的時候，世界上約有8億人口(13%)因糧食不足而營養不良；

When we throw away food, about 800,000,000 people (13%) in the world are suffering malnutrition because they do not have enough to eat;



糧食生產與氣候息息相關，不斷棄置可食用的糧食，我們便需要生產更多可糧食；但大量生產糧食會加劇碳排放，導致氣候改變；氣候改變也會影響將來的糧食生產：今天的浪費，或會導致將來的糧食短缺；

Food production is closely related to climate. If we keep throwing away edible food, we need to produce more edible food. But, if we produce more food, there will be more carbon emission that affecting the climate change. Climate change will then influence food production in the future. So, if we waste food today, we will not have enough food in the future.



隨意棄置食物、把食物掩埋在泥土裏，會產生甲烷及一氧化碳，同樣會影響環境；

If we throw away food so easy, and dump food in the soil, CH_4 and carbon monoxide (CO) will be produced. Then, the environment will also be affected;



為了維持肉類的產量，部份農作物被用來餵飼牲畜；如果我們丟棄肉類食物，其實我們也同時丟棄了可作為糧食的農作物；

To maintain meat production, some crops are planted to feed livestock. If we throw away meat, we are in fact throwing away crops that can be used as food;



生質燃料的研發，正偷偷地奪去農作物產量；農作物的豐收並不等於有充足的糧食；

Biofuels are gradually taking away crops. So, a good harvest does not mean enough food;



最重要的是，不管是蔬果五穀還是肉類，它們也是生命！

Above all, vegetables, fruits, grains and cereal as well as meat are all from living things!



Water

我們的淡水

地球上，約有70%的面積被海洋覆蓋。可是，可供我們飲用的水資源，其實相當有限。原因是海洋的水屬於鹹水，需要經過化淡處理才能飲用，但海水化淡的過程需要耗費大量能源。

現時我們飲用的食水，主要是來自地表水和地下水。「地表水」是暴露於地面上的水源，一般是從河流、湖泊和水庫抽取出來的；相反，「地下水」則是從地下深處蓄水層的井中抽取。至於地下水井有多少水可供飲用，主要視乎水岩層、砂石和土壤的性質。

Almost 70% of the earth surface covers with oceans. However, drinkable water resources are limited since the desalination process consumes many resources to convert the salty sea water into fresh water for human use.

There are mainly 2 types of water we use currently: surface water and groundwater. Surface water is the water on the surface of the earth, including rivers, lakes and reservoirs. Groundwater is under the surface of the earth. The quantity of drinkable ground water from a well depends on the stone layers and the composition of sands and soil.

Our freshwater

sur-

節約用水 Build a good 好習慣 water-saving habit

日常生活中，只要我們多點留意，
就可以幫助保護地球的淡水資源：

We can protect the fresh water resources of the earth if
we pay more attention in our daily life:



沒有需要時，緊記關掉水龍頭，不要讓水龍頭滴水；

Turning off the water tap tightly to ensure no water leakage.



如果水龍頭滴水，應盡快維修。滴水一年的話，會浪費近5,000升的食水。

Repairing the water tap when there is water leakage as soon as possible. Nearly 5,000 liters of water will be wasted in one year due to water leakage.



刷牙洗臉的時候，不用長開水龍頭；可以用小杯和臉盆盛載用水；

Turning off the water tap and fill a small cup/basin with water when brushing your teeth or washing your face.



淋浴較浸浴省水；縮短淋浴時間、使用低流量淋浴頭能更省水；

Taking quick shower instead of bath to save more water.



在水龍頭上安裝節水器，可以減少水流量；

Installing a water saving device to a tap to reduce water flow.



小朋友，您能想到其他節約用水的方法嗎？
Dear kids, do you know any other ways of saving water?



花草澆水要適度；過量的水也會傷害泥土中的植物根莖；

Watering flowers and plants properly and overwatering will damage the roots of the plants.



洗衣機裝滿了衣服後才一起清洗，洗碗碟機裝滿了碗碟才使用，會較省水；

Washing clothes/plates only when the washing machine is full in order to save water.



如果家中有兩段式的沖水馬桶，可以先選擇用少量沖水。

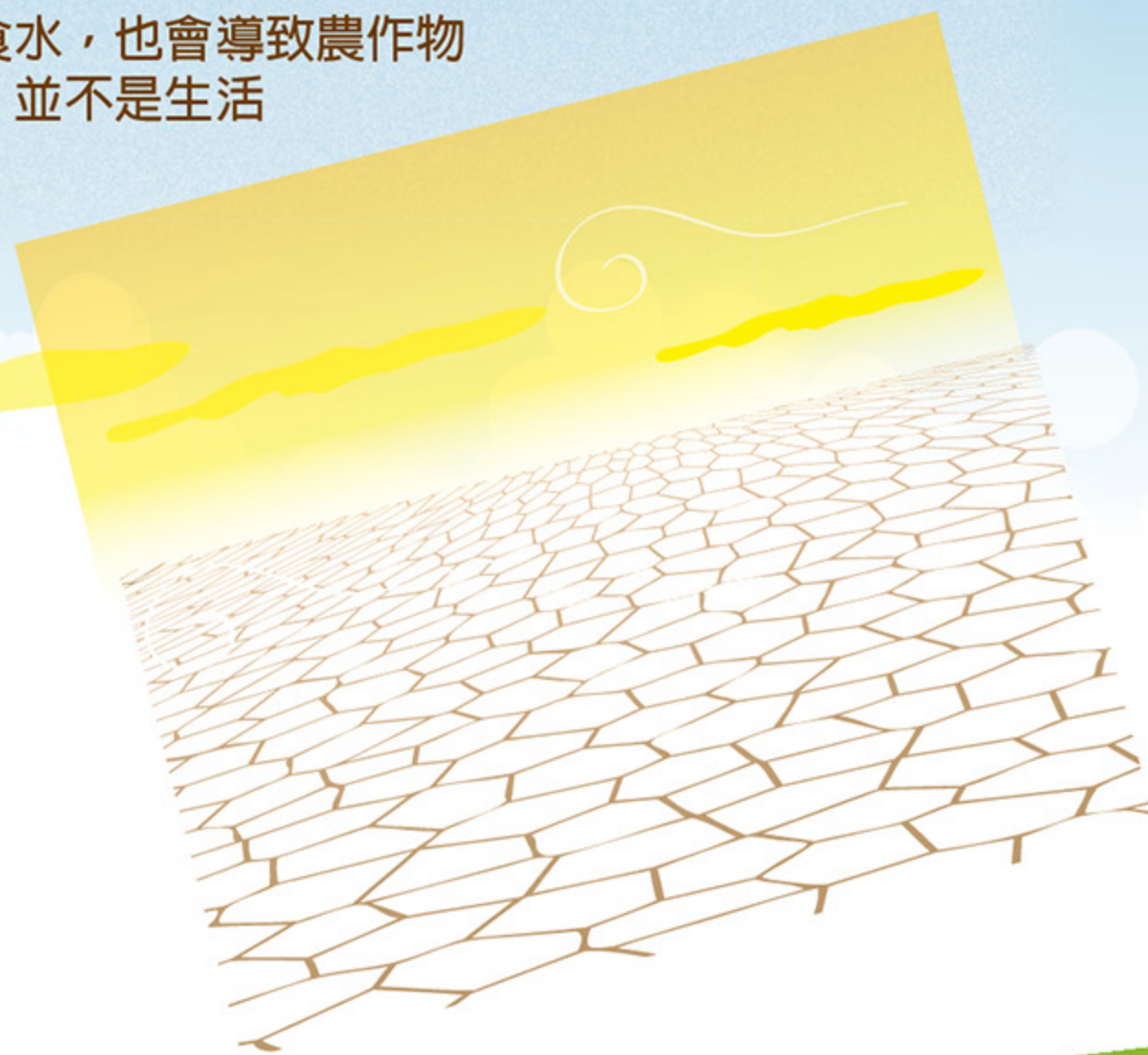
For dual-flush toilet, selecting the low-flush button if possible.

乾旱 Drought

雨水為我們帶來地表水，可是下雨並非必然。以中國為例，就經常遇上旱災。2000年，全國多個省份出現旱情，涉及近4000萬公頃的土地；2006年重慶市也發生嚴重的旱災，約近800萬人受災缺水；其後在2007、2009年中國境內不同的省份出現乾旱，令過百萬人的生活受到影響。

世界其他地區也常遇到旱災。例如非洲地區的居民，長期生活在乾旱的環境。2006至2007年期間，澳洲及歐洲多個國家就曾出現乾旱，打擊穀物的收成。2012年加拿大東部發生大旱，令農作物失收，影響糧食供應。2014年1月底美國加州遇上500年來最嚴重的旱災，並由三藩市蔓延至洛杉磯，不但農作物收成嚴重受到影響，就連畜牧業的肉類供應也受到牽連。

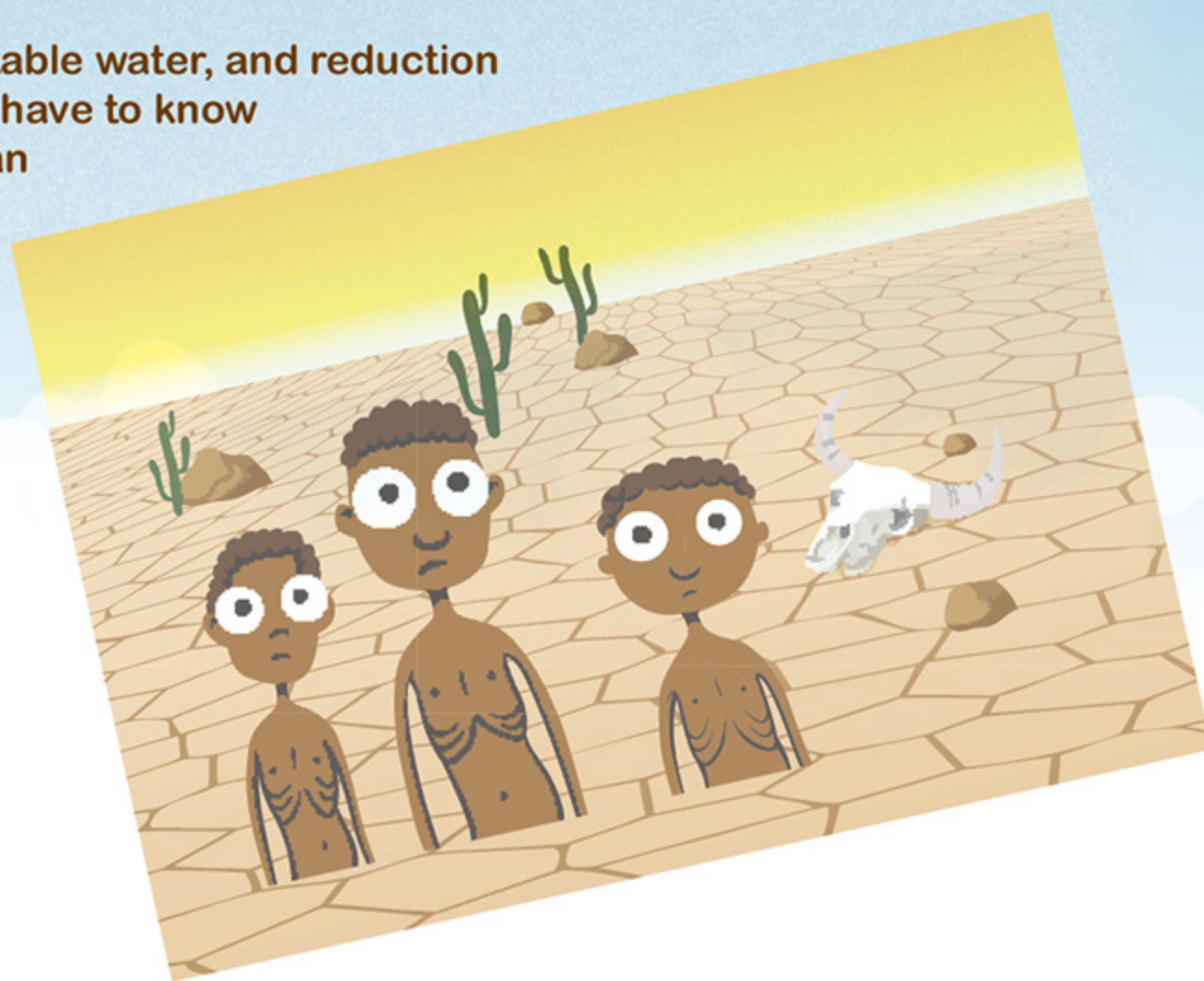
乾旱，不單使我們缺少可飲用的食水，也會導致農作物失收，影響糧食供應。在地球上，並不是生活在每一處地方的人都可以飲用淡水。我們要好好珍惜現有的食水，不要浪費啊！



In many places, there is lack of raining to bring us surface water. In 2002, there were droughts in several provinces in China, affecting nearly 0.4-billion hectares of area. In 2006, a severe drought in Chongqing affected 8-million people, while in 2007 and 2009, droughts in various provinces in China had affected more than a million of people.

Droughts are common in other regions of the world. For instance, people in Africa have been living in an arid environment for a long time. In 2006 and 2007, countries in Europe and Australia had experienced droughts, causing serious crop losses. The drought disaster in Eastern Canada in 2012 had resulted in reduction of crop production and food supply. In January 2014, California in the U.S. had encountered an extreme drought ever since the past 500 years and even extended from San Francisco to Los Angeles, affecting not only crop yields but also the meat supply.

Droughts cause shortages of drinkable water, and reduction of crop yields and food supply. We have to know that not every place in the world can enjoy fresh drinkable water. Please cherish the water you can use now and make no waste!





小朋友，在日常的起居生活中，你如何保護環境呢？

Dear kids, do you know how to protect the environment in your daily life?

保護地球，由個人做起。我們的起居習慣對地球有重要的影響，從日常生活中每項小節著手，便可以齊心協力改善環境。本部份介紹家居生活與環境保護的關係，以及如何由改變「住」的習慣去減低人類對環境的破壞。

Protection of the earth starts with you. Our living habits have great impact on the earth. We can improve the environment starting from our daily life. This part introduces the relationship between human lifestyle and environmental protection, as well as ways of changing our "living" habits to reduce the damage to the environment.



能源 標籤知多少

Know more about
Energy labels



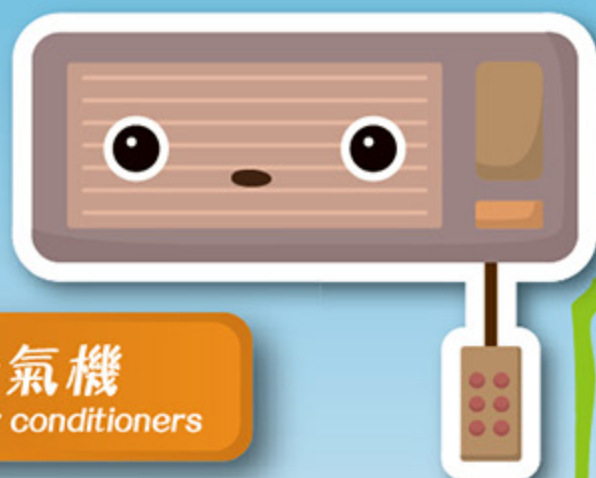
甚麼是「能源標籤」？ What is "energy label" ?

你知道嗎？使用有能源效益的電器，可節省大量耗電，以及減少發電廠排放溫室氣體與其他空氣污染物。為方便市民選擇具能源效益的產品、提升市民對節約能源的意識，政府於2009年11月起，推行強制性能源效益標籤計劃（強制性標籤計劃），規定以下供應本港的產品，都必須附有能源標籤，讓消費者知道它們的能源效益表現。

Do you know? Using energy efficient appliances can help save electricity and reduce the emission of greenhouse gases and other air pollutants from power plants. To help the public choose energy efficient products and raise their awareness on energy saving, the Government has introduced the "Mandatory Energy Efficiency Labelling Scheme" (MEELS) in November 2009, that energy labels are required to be shown on the following products supplied to Hong Kong to inform consumers of their energy efficiency performance.



那些電器需要有能源標籤？
Which electrical appliances need
to have energy labels ?



冷氣機
Room air conditioners

雪櫃
Refrigerators



抽濕機
Dehumidifiers



洗衣機
Washing machines



省電燈泡
Compact fluorescent lamps



能源標籤有那些級別？ Grades of the energy labels

高能源效益的電器，表示消耗較少能源，有助保護環境。能源標籤把同一類電器的能源效益分為5級；能源效益最高是第1級，最低是第5級。

High energy efficient appliances mean less energy consumption and help protect the environment. Energy label grades the energy performance of an appliance from Grade 1 to 5, with Grade 1 being the most energy efficient while Grade 5 the least efficient.

Grade 1 級

Grade 2 級

Grade 3 級

Grade 4 級

Grade 5 級



想一想

小朋友，除了這5類電器，你認為家裡那些電器都應該有能源標籤呢？

Dear kids, can you suggest any other home appliance should have an energy label other than the 5 types above-mentioned?

了解能源標籤 Get to know energy labels

冷氣機

Room air conditioners

能源效益級別 Energy efficiency grade :

Grade 1 級

Grade 2 級

Grade 3 級

Grade 4 級

Grade 5 級

1 級最高 (綠色)、5 級最低 (紅色)。

Grade 1 products are most efficient (in green colour) and the Grade 5 are least efficient (in red colour).

節約能源的百分比 Percentage of energy saving (%) :

1 級比 3 級節省 15% 能源、1 級比 5 級節省 29% 能源。

The Grade 1 means 15% less energy consumption than the Grade 3 and 29% less than the Grade 5.

雪櫃

Refrigerators

能源效益級別 Energy efficiency grade :

Grade 1 級

Grade 2 級

Grade 3 級

Grade 4 級

Grade 5 級

1 級最高 (綠色)、5 級最低 (紅色)。

Grade 1 products are most efficient (in green colour) and the Grade 5 are least efficient (in red colour).

節約能源的百分比 Percentage of energy saving (%) :

1 級比 3 級節省 35% 能源、1 級比 5 級節省 49% 能源。

The Grade 1 means 35% less energy consumption than the Grade 3 and 49% less than the Grade 5.

了解能源標籤 Get to know energy labels

省電燈泡

Compact fluorescent lamps



能源效益級別 Energy efficiency grade :

Grade 1 級

Grade 2 級

Grade 3 級

Grade 4 級

Grade 5 級

1 級最高 (綠色) , 平均電燈壽命 8,000 小時或以上、5 級最低 (紅色) , 平均電燈壽命少於 6,000 小時。

Grade 1 products are most efficient (in green colour) and have an average service life of 8,000 hours or above. Grade 5 products are least efficient (in red colour) and have an average service life of below 6,000 hours.

節約能源的百分比 Percentage of energy saving (%) :

1 級比 3 級節省 14% 能源、1 級比 5 級節省 18% 能源。
省電燈泡比一般鎢絲燈省電 75% , 而壽命則平均長 6 至 8 倍或以上。

The Grade 1 means 14% less energy consumption than the Grade 3 and 18% less than the Grade 5.

Compact fluorescent lamps save around 75% of electricity compared to incandescent lamps and on average last up to 6 to 8 times longer or more.

洗衣機

Washing machines



能源效益級別 Energy efficiency grade :

Grade 1 級

Grade 2 級

Grade 3 級

Grade 4 級

Grade 5 級

1 級最高 (綠色) 、5 級最低 (紅色) 。

Grade 1 products are most efficient (in green colour) and the Grade 5 are least efficient (in red colour).

節約能源的百分比 Percentage of energy saving (%) :

1 級比 3 級節省 25% 能源、1 級比 5 級節省 40% 能源。
Grade 1 means 25% less energy consumption than Grade 3 and 40% less than Grade 5.

了解能源標籤 Get to know energy labels

抽濕機

Dehumidifiers

能源效益級別 Energy efficiency grade :

Grade 1 級

Grade 2 級

Grade 3 級

Grade 4 級

Grade 5 級

1 級最高 (綠色)、5 級最低 (紅色)。

Grade 1 products are most efficient (in green colour) and Grade 5 products are least efficient (in red colour).

節約能源的百分比 Percentage of energy saving (%) :

1 級比 3 級節省 24% 能源、1 級比 5 級節省 42% 能源。

Grade 1 means 24% less energy consumption than Grade 3 and 42% less than Grade 5.



小朋友，家裡需要買電器時，你們會化身小幫手去看看能源標籤，選擇可以節省能源，減少排放污染的款式嗎？

Dear kids, to save energy and reduce pollution, will you help your parents choose home appliance of good energy efficient performance by reading energy labels?

我們不是垃圾!

We are not waste !

甚麼是「垃圾」？簡單來說，被人們放棄或掉進廢物箱的便是「垃圾」。那麼，當物件變成「垃圾」後，是不是便沒有價值？試想想，一份即日的報紙是人們每天的讀物，但當報紙逾期後便會被棄置。但這件所謂「垃圾」，原來仍然很有價值。

What is "waste"? Simply speaking, "waste" is what discarded in the waste bin. Does "garbage" not have any value? Just think, today's newspaper will be discarded after reading. However, this so-called "waste" still has its value.



小朋友，你在這數天所丟棄的垃圾裡，有沒有一些是可以重複利用的？

Dear kids, any garbage you have thrown away these days can be recycled?

重複利用 Recycle

只要我們細心觀察，便不難在日常生活中找到這些被看成「垃圾」的有用物資；只要我們動動腦筋，更可以令它們再次成為可用資源。如果大家都願意在丟棄東西前「停一停，想一想」，也許，你我也可把「垃圾」重複利用，延續它們的生命。

If we observe carefully, we can easily discover the reuse value of the “waste” in our daily life. If we “stop and think” before throwing things away, we may recycle “waste” and extend its life.



喝完即棄的水瓶可以用來做筆筒
Reuse empty water bottles as
pen holders





大型的紙皮箱，如電腦盒、電視機盒、雪櫃盒等，可以切割成輕便的紙檯
Large cardboard boxes, such as computer boxes, TV boxes and refrigerator boxes can be reused to make lightweight paper tables.



舊的紅封包用作裝飾品的材料
Reuse old red pockets to make handicrafts



請維修師傅修理故障的電器
Repair broken electrical appliances





過期報紙或宣傳單張代替花紙
Reuse old newspapers or leaflets to
replace wrapping papers



把包裝膠袋儲存再充當垃圾袋
Reuse plastic shopping bags as
garbage bags



在生鏽的櫃門鉸上噴上潤滑油
Spray lube oil on rusty cabinet
door hinges





把晚餐的剩菜冷藏起來作明天的午餐
Refrigerate dinner leftovers for lunch
for the next day





日常生活中所使用的物品，無論是生產、使用或丟棄，都會耗用能源，產生二氧化碳。如果我們在日常生活減少浪費和循環使用這些物品，便可大大減低碳排放和耗用地球資源。大家願意為地球出一分力，做個環保小大使嗎？

Energy consumption produces carbon dioxide and so for the goods being produced, used or thrown away in our daily life. If we can produce less waste and recycle them, we can reduce carbon emission and save the earth's resources. You can help and be an environmental protection ambassador.



???
Guess???



想
一
想

小朋友，如果你是環保小大使，你會如何分擔保護地球的責任？

Dear kids, will you protect the earth and become an environmental protection ambassador?



環保小大使小守則

Rules for environmental protection ambassadors



● 避免使用一次性用完即棄的物品，例如木筷子、紙杯、紙碟；以毛巾或手帕代替紙巾。

Do not use disposable things made for one-time use such as wooden chopsticks, paper cups and plates. Use towels or handkerchiefs instead of paper tissues.



● 利用舊紙張空白的背面，作筆記或草稿紙之用；起稿時盡量用鉛筆，減少使用原子筆。

Use the blank side of used paper to jot notes and draft. Use pencils instead of ball pens in drafting.



● 購物前先定出購物清單，減少購買不必要的東西，有助減少產生廢物。

Make a shopping list before shopping to avoid buying unnecessary things and reduce waste.



● 選擇購買簡單包裝的貨物，少買獨立包裝物品及減少使用禮物包裝紙。

Buy goods in simple package rather than in individual package and use less gift wrapping paper.



● 購物時自備購物袋，減少使用難以分解、焚化亦會帶來空氣污染的塑膠袋。

Bring your own shopping bags and do not use plastic bags that are hard to break down and will bring air pollution after burning.



● 購買家庭用品，例如洗頭水、清潔劑等，選擇包裝較少的家庭裝或補充裝。

Buy family pack or refill pack of household goods, such as shampoo and cleaner.





- 購買由再生物料製造的產品，例如再造紙，減少耗用地球資源。
Buy goods made of renewable materials such as recycled paper to reduce consumption of the earth's resources.



- 出外時利用可重複使用的水瓶自備飲料，減少購買不能循環再用的包裝飲料。
When you go out, bring your own drinks in reusable bottles and do not buy drinks in unrecyclable containers.

- 支持家居廢物分類回收，先在家中把金屬、紙張和塑膠分類，再按類別放進回收箱。
Support recycling of household waste by category. Sort metal, paper and plastic things at home and then put them in the recycling bins by category.

- 沒有破損的舊衣物可放進舊衣回收箱；舊家具及舊電器可捐贈給朋友，或透過慈善團體轉送給有需要人士，減少資源浪費。
Put old reuseable clothes in the old clothes recycling bins; give old furniture and electrical appliances to friends or donate them to the charities in order to save natural resource.



「廢物分類」你要知

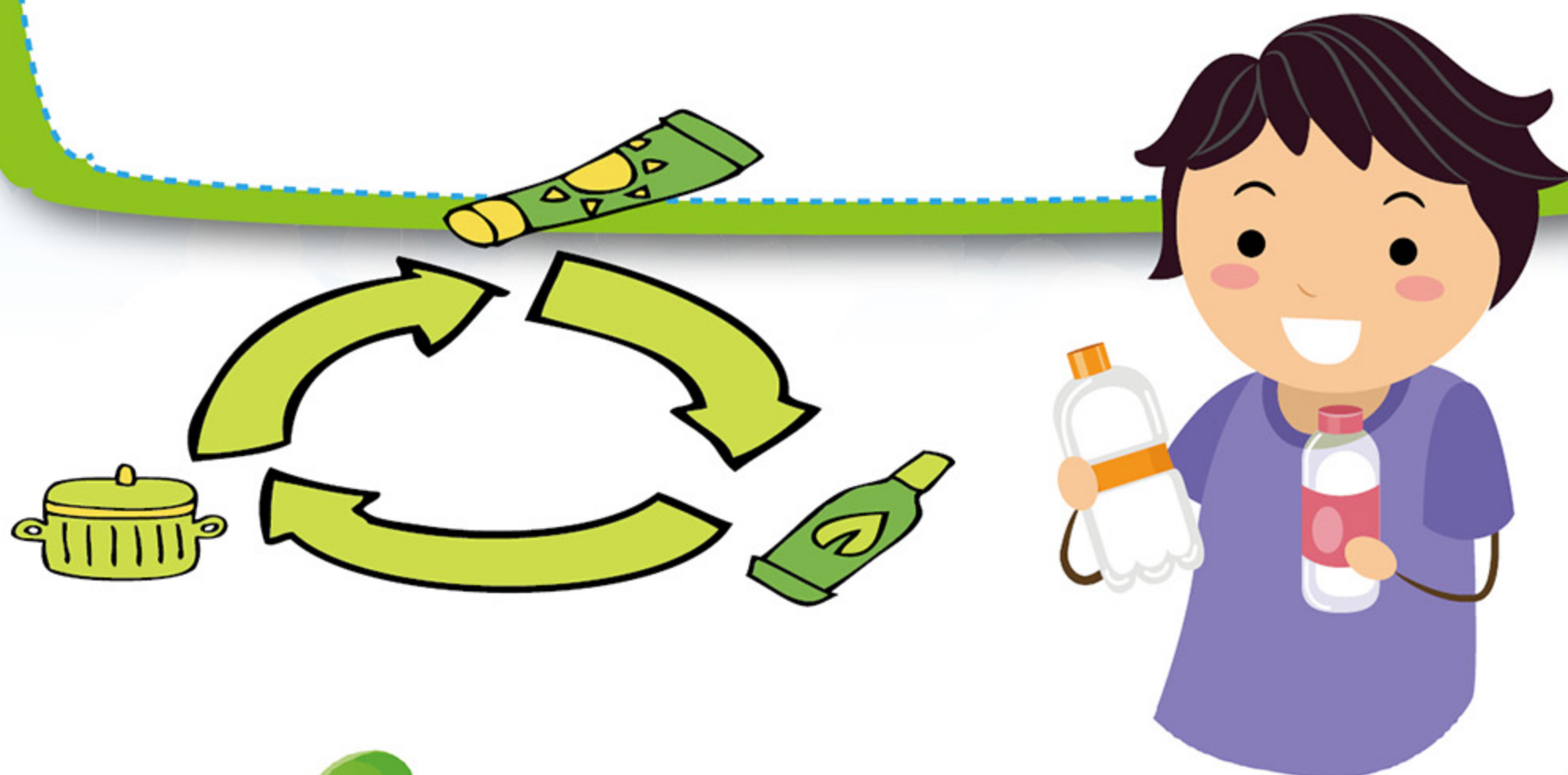
Know more about "waste separation"

甚麼是「家居廢物源頭分類計劃」？

What is "Programme on Source Separation of Domestic Waste" ?

香港現存的三個堆填區快要飽和，因此，減少及回收廢物再用是非常重要的。政府於2005年在全港推行「家居廢物源頭分類計劃」，讓市民認識回收再造的重要性，鼓勵市民參與廢物分類回收，減少廢物棄置，以延長堆填區的壽命。

The existing 3 landfills in Hong Kong are running out of space and it is crucial for us to reduce and recycle our wastes. The "Programme on Source Separation of Domestic Waste" was launched territory-wide in 2005 to publicize the importance of and encourage separating waste for recycling. It will help minimise the amount of waste and extend the life of the landfills.



怎樣參與「家居廢物源頭分類計劃」？

How to join the “Programme on Source Separation of Domestic Waste” ?

計劃會透過鼓勵及協助物業管理公司提供廢物分類回收設施，方便居民在源頭進行廢物分類，並擴大可回收物料的種類，以提高廢物回收量和減少廢物。居民只需把可回收的物品分類，然後放置於屋苑內的回收地點便可，非常方便。

By encouraging and assisting property management companies to provide waste separation facilities for residents to separate waste at source and by broadening the types of recyclables to be recovered, the Programme aims to increase the recovery rate of domestic waste and reduce waste. All residents need to do is to separate recyclables in the waste by category, and then take them to the designated locations.



廢物回收 Do & Don't

	可回收物料 Recyclable materials
廢紙 Waste paper	報紙、雜誌、宣傳單張、信封 Newspapers, magazines, flyers, envelopes 物件包裝紙盒、蛋盒 Packaging carton boxes/materials, egg cartons 購物紙袋 Paper shopping bags
金屬 Metals	鋁罐、奶粉罐 Aluminium cans, milk powder cans
塑膠 Plastics	膠樽和樽蓋 Plastic bottles & caps 塑膠容器，例如膠桶、食物盒 Plastic containers (e.g. buckets, food containers) 膠袋、塑膠包裝 Plastic bags, plastic wrappings 光碟、錄音帶、錄影帶、鐳射影碟 CD, DVD, cassette / video tapes, laser discs 玩具、文具 Toys & stationery
其他 Others	充電電池、電器及電子產品、衣物、電腦、省電燈泡及燈管、 碳粉盒、廚餘、玻璃樽 Rechargeable batteries, electrical & electronic appliances, clothing, computers, compact fluorescent lamps and tubes, ink cartridges, food waste, glass bottles

??
Guess??



小朋友，在日常生活裡，有那些廢物是可以分類回收的？

Dear kids, what wastes are recyclable by category in daily life?

不可回收物料 Unrecyclable materials

廢紙 Waste paper	含有塑膠、鋁金屬層膜的紙包飲品或牛奶盒 Beverage or milk cartons with lamination or plastic / aluminum coatings inside
金屬 Metals	壓縮氣體罐、化學物料容器 Aerosol cans, chemicals containers
塑膠 Plastics	沾有化學品或藥物的容器 Containers smeared with chemicals or drugs
其他 Others	電燈泡、陶瓷、受污染的物料 Light bulbs, ceramics, contaminated materials

少用電梯 多行樓梯

Use the stairs more and
the lift less

升降機帶給我們極大的方便，但大家可知道它每一次的升降，以及每一次停下來和啟動都會排放二氧化碳及消耗電力？

The lift brings us great convenience, but do you know that there are carbon emission and energy consumption each time it goes up or down, stops or starts again?



環保小提議： Tips on environmental protection:

少用升降機 Use the lift less

少一點使用升降機，電力消耗便少一點、二氧化碳排放亦少一點。

The less we use the lift, the less power will be consumed, and the less carbon dioxide will be emitted.

乘升降機時，不妨「停一停、等一等」，稍等其他人一起乘搭，可以減少它運行的次數。

When taking the lift, let's "look around and wait" for others to take the lift together, which help reduce operations of the lift.

把升降機設定成隔層停，環保之餘亦可讓大家多走動一下。

Set the lift to stop on odd- or even-number floors, thereby protecting the environment and enabling us to have a walk.

多行樓梯 Use the stairs more

以樓梯代替升降機，省電減碳之餘，把行樓梯看成一種日常運動，培養每天行樓梯的習慣，把它融入生活之中，更可強健骨骼、改善心肺功能、促進血液循環，有益身心。

Instead of taking the lift, we can save energy and reduce carbon emission by using stairs. Let's do daily exercise by developing a habit of climbing stairs every day, which will help us build strong bones, improve heart and lung functions and promote blood circulation, which is good for our physical and psychological health.



善用空調， 多用風扇

Make good use of
air-conditioners and electric fans

冷氣機可以調節室內的溫度及濕度，是炎炎夏日的好幫手。但它的碳排放量及耗電量十分大，遠遠高出風扇的十倍以上。

Air-conditioners, which can adjust room temperature and humidity, improve our comfort in hot summer days. However, its carbon emission and energy consumption are 10 times more than those of electric fans.



小朋友，炎炎夏日裡做完運動後，你會怎樣環保地消暑呢？

Dear kids, how to keep yourselves cool in an environmental-friendly way after doing exercise in a hot summer day?



環保小提議：

Tips on environmental protection:

善用空調

Make good use of air-conditioners

開啟冷氣機時，確保門窗緊閉。房門不要經常開關，以免冷氣流失。

Make sure that doors and windows are closed when the air-conditioner is turned on. Don't frequently open and close the door because we may let out the cold air.

定期清洗冷氣機，確保冷氣機有效地運作。只要每月清洗一次，便可省電 10%—30%。

Clean the air-conditioner regularly to make sure it works well. We can save 10%-30% on power bills by cleaning the air-conditioner once a month.

不要將冷氣機安裝在陽光直射的位置，以免令冷氣產生的效能大打折扣。

Don't expose the air-conditioner to direct sunlight or elsewhere, its working efficiency will be greatly cut down.

在冷氣房裡，不宜穿著過多衣物，因冷氣機設定的溫度越低，消耗能源越多。

Don't wear too many clothes in an air-conditioned room because the lower the temperature we set, the more energy it consumes.

將冷氣機設定為除濕模式，即使室溫稍高也能令人感覺清爽，且比冷氣模式省電。

If we set the air-conditioner at the dehumidifying mode, we can feel cool even at a slightly higher room temperature and hence saving energy.

睡覺前將冷氣機設定為睡眠模式及使用定時器，可達到既省電又舒適的睡眠效果。

Use of the sleep mode and timer of an air-conditioner enables us to have a good sleep with less energy consumption.

善用風扇

Make good use of electric fans

開冷氣時，將風扇放在冷氣機下開動，可提高冷房效率，還有助冷氣均勻分佈。

Using an electric fan in an air-conditioned room can help cold air flow around in the room and also cool down the room temperature.

縮短開啟冷氣機的時間；冷氣機關上後，便借開動風扇，減慢溫度回升的速度，又可省電。

After turning off the air-conditioner, we can turn on the electric fan to prevent the room temperature from going up too quickly. Much energy will be saved because we have shortened the working hours of the air-conditioner.





環保屋

Environmental-friendly homes

為了保護環境，減少消耗資源，減少二氧化碳的排放，人們的日常生活方式開始有節制：希望能夠節約能源、不浪費，並以簡約的家居設計，使用可循環再用的材料；而有創意的生活方式，亦可同時不影響生活質素。在日益重視環保的今天，低碳、健康及自然的綠色居住方式，漸漸成為新一代城市人的生活態度。

因此，現代房屋建造，是要講求環保的。利用環保設計、使用節能的建築材料和設施，以降低能源消耗。從實際上來看，也許開始的投入成本較高，但入住後將會大大降低日常生活費用。隨著節能環保技術的發展，環保建築的成本正逐漸下降，讓節能減碳建築更普及於大眾住宅。

To reduce energy consumption and the emission of carbon dioxide, people start to behave environmentally-friendly in their daily life. They hope to save energy by adopting a simple interior home design, using recyclable materials and having an energy-saving lifestyle and ensuring their quality of life at the same time. With increasing concern over environmental protection, today's city dwellers have been seeking a low-carbon, healthy and green way of living.

That's why we have to be environmental-friendly in building our homes. We should adopt environmental-friendly design and use energy-saving building materials and facilities to reduce energy consumption. Such design and materials may cost a bit more at the beginning but will greatly cut our daily spending in the future. With the development of energy-saving and environmental-friendly technology and the drop of environmental-friendly building costs, more and more people will be living in energy-saving and low-emission homes



太陽能

Solar energy

利用太陽熱能

Make use of solar energy

在房屋外牆加建由鋼板或鋁板造成的太陽牆，夏天時太陽牆起隔熱作用；冬天時把太陽牆連接大廈通風系統，把太陽熱能傳送到室內，達到冬暖夏涼的效果。

Turn the outer wall of houses into a solar wall that is made of steel or aluminum plates. In summer the solar wall helps insulate heat while in winter the wall is connected to the ventilation system of the building to pass the heat of the sun into our rooms. And that's how a solar wall keeps us cool in summer and warm in winter

太陽能發電

Solar power generation

以太陽能實現能源供應和零廢氣排放。利用太陽能電池板，在屋頂和幕牆收集陽光以產生電力，供應給房屋的照明系統及其他電器使用。若太陽能電力系統能和外電網互聯，日間取得的太陽能電還可以輸送到電力站儲存起來。那麼，不但晚間有潔淨的太陽能電可用，還可以為社區供電出一分力。

Solar energy supplies power without emitting waste gas. Solar panels on roofs and curtain walls collect sunshine to produce power for the lighting system and other electrical appliances in houses. If the solar power system is connected with the external power grid, the solar power gathered in daytime will be stored in power stations. In this way, we can not only use clean solar energy at night but also reduce our reliance on power supply of the community.



玻璃幕牆

Glass curtain wall

中空設計

Hollow design

建築物內的能源，約50%是透過門窗而損失的。目前現代化建築，多採用由鏡面玻璃與普通玻璃組成的中空玻璃幕牆，利用其中空隔熱原理，既可吸收紅外線，亦可減少進入室內的太陽輻射，透過玻璃幕牆進入室內的陽光，即使曬在身上也不會感到炎熱，可有效地防止能源流失，做到冬暖夏涼的效果；而中空的結構還能隔除噪音，降低能源消耗，亦大大地改善了生活環境。

About half of the energy in buildings is lost through doors and windows. Most of the modern buildings are now using the hollow glass curtain walls made by mirror and common glasses. Owing to hollow thermal insulation, such curtain walls can absorb infrared rays and reduce solar radiation entered into rooms, which makes us feel less hot indoor and effectively prevents energy loss. So we will feel comfortable all the year around. Moreover, the hollow structure can insulate noises, helps cut down energy consumption and greatly improves our living environment.

天然採光

Natural lighting

天然採光通過在屋頂的透光玻璃引入日光，善用天然光不但可為建築物節省能源，而且能使室內有更舒適的光度。若與人工照明系統配合得宜，使用天然光可更有效地減少人工照明系統的用電量。

Natural lighting means best use of sunshine through the transmitting glass on rooftop. Making good use of the natural light can save energy for buildings and make rooms brighter and comfortable. If it works well with the artificial lighting system, the power consumption can be also reduced effectively.



照明系統

Lighting system

家居照明可採用節能的省電燈泡代替鎢絲燈泡，它的壽命是鎢絲燈泡的6-8倍，電力可節省75%以上，還能提高照明效果。

Residential lighting can use energy saving compact fluorescent lamps instead of incandescent lamps. A compact fluorescent lamp has an average service life 6-8 times longer than that of an incandescent lamp, saves more than 75% of power and produces better lighting effect as well.

採用節能的LED燈(發光二極管燈)：在同樣亮度下，LED燈耗電量僅為鎢絲燈的十分一，壽命卻是它的100倍。

Use of LED (light-emitting diode) lamps: Under the same luminance, a LED lamp consumes one tenth of the power and has 100-time service life compared to an incandescent lamp.

環保小提議：

Tips on environmental protection:

隨手關燈，在不需要照明時把電燈關上，不僅省電，還可減少污染及碳排放。

Turn off the lights when you do not need them. It helps save energy and reduce pollution and carbon emission.

培養早睡早起的習慣，把工作放在白天做，提高白天的工作效率，充分利用太陽光，也是環保節能、低碳的生活方式。

Wake up early and work in daylight. This low-carbon lifestyle can also improve your working efficiency.

保持燈泡及燈具清潔以達到最佳照明效果。

Keep light bulbs and lamps clean for the best lighting effect.

選用燈泡時要查看它的效能標示、平均壽命、節能評價及功率等；亦需要注意配件的材料質素，以耐高溫阻燃的材料為佳。

When choosing light bulbs, check the energy efficiency label, their average service life, energy saving value, and also choose the material of the fittings of better flame retardance and high temperature resistance.



小朋友，小小的熄燈行動背後有著重大的意義，你願意養成「熄燈」的習慣，為保護環境出一分力嗎？

Dear kids, turning off lights whenever you do not need is simple but has great impact on the environment. Will it become your habit?



Transportation

「行」不但包括乘搭交通工具，也包括人們外出時所攜帶的物品。現代人外出會攜帶不同種類的電子通訊物品，也會購物回家，我們這些習慣，會對地球環境有甚麼影響呢？現在可以由「行」出門開始去愛護地球，保護環境！

"Transportation" includes the use of transportation vehicles and what you bring along when you go out. People nowadays will bring various electronic devices when they go out and buy goods home also. How do our habits affect the environment? Let's love the earth and protect the environment from "transportation"!



出行

升降機解碼： 節能多面睇

大家有沒有留意，升降機原來有兩類？現時大部份樓宇內的升降機，主要分為油壓式及曳引式。

油壓式升降機會用於少於七層的大樓，轎箱的升降由固定的速度控制。操作看似簡單、服務樓宇不高，但是耗電量大、爬升的速度慢，而且機油與油壓閥門摩擦會產生高熱，通常需要加裝冷卻系統，增加能源消耗。

大部分的高樓大廈，主要採用曳引式升降機。它的特點是設有對重裝置。升降機內有多組鋼索，除了懸掛起轎箱外，它的另一端是懸掛着用來平衡的對重裝置。這個對重裝置通常有相等於轎箱加上它40%負載時重量。當升降機內擠滿了人，它的重量會比對重裝置為重；升降機要上升的話，就需要更多的能源。相反，如果一個人獨自乘升降機下樓的話，對重裝置就顯得較重，而升降機便要消耗更多的能量呢！所以，在非繁忙時段獨自下樓，考慮多走樓梯就有助減少消耗能源啊！

此外，升降機的照明系統、電力裝置、電子設施常要處於備用狀態，亦會消耗能源，每小時約0.8 – 2 千瓦。因此，有些大廈在非繁忙時間，會關掉一部或以上的升降機來節能，請大家耐心等待一下，你的耐心等待其實是在保護我們的環境呢！





Going Out About elevators:

A closer look at
energy saving

Do you know there are two types of elevators? At present, the elevators in most buildings are either hydraulic elevators or traction elevators.

Hydraulic elevators are used in buildings with less than seven storeys. The cars go up and down at a fixed speed. It seems that they operate easily since the buildings are low rise. However, they consume much energy and rise slowly. Moreover, lots of heat will be produced when the machine oil rubs against the oil pressure valve. A cooling system is thus needed and more energy is consumed.

Most high-rise buildings mainly use traction elevators installed with a counterweight system. There are a number of wire ropes in the elevators. They are used to hang the car at one end and the counterweight at the other end. The counterweight is usually as heavy as a car when it is 40% full. When the elevator is full, it is heavier than the counterweight.

When the elevator moves up, more energy will be consumed. Instead, if the elevator goes down with only one person in it, the counterweight is heavier and the elevator will consume even more energy! So, if you go out in off-peak hours, you may take the stairs and save energy.

In addition, the lighting system, electrical installations and electronic devices in the elevators operate with ready modes. As a result, energy is consumed, about 0.8-2 kw per hour. So, some buildings may turn off one or more elevators in non-peak hours to save energy. Please wait patiently and you are protecting the environment by doing this!

Let's use
low-carbon
transportation vehicles
一起選擇低碳交通工具



集體運輸是我們生活的一部份。根據香港運輸署的研究表出，使用公共交通工具的乘客人次佔總乘客人次的88%，其餘的是使用私家車輛。而香港環境保護署的報告顯示，香港的道路運輸是本地一氧化碳排放的最主要來源，佔約65% (44,100噸)，也是揮發性有機化合物及氮氧化物排放的重要來源之一。因此，如果大家都選擇集體運輸，我們減少私家車輛在路面行走的數量，便可減低二氧化碳及其他有害物質的排放。

Using Mass transit is a part of our life. According to a study of the Transport Department of Hong Kong, 88% of passengers took public transport means and the others used private cars. A report of the Environmental Protection Department of Hong Kong showed that road transport was the major source (accounting for about 65%, i.e., 44,100 tons) of carbon monoxide emission in Hong Kong and an important source of volatile organic compounds and nitrogen oxides emission. So, if we all choose mass transport and do not use private cars, we can reduce the emission of CO₂ and other harmful pollutants.



行路不難： 短途的零碳體驗

Walking is not hard:
A short zero-carbon trip

還記得住在學校附近的時候，徒步上學或下課的情境嗎？要達到零碳運輸，我們可以選擇徒步到目的地。大家知道嗎？要從油麻地徒步到深水埗，或由北角走到銅鑼灣，其實也不用一小時。如果大家的時間許可，可預早計劃步行的行程，步行不但有助減碳，亦是運動有益身心。一邊步行，你可趁機認識居住的社區。

另外，騎單車也是一種零碳運輸的方法。不過，由於香港市區路面人多車多，兒童要應付繁忙的路面環境並不容易。但在新界有許多地方均設有單車徑，連接到鐵路系統。若你的家離開鐵路較遠，騎單車會是另一個零碳好選擇。

Do you remember the time when you live near school and walk to school on foot? We can realize zero-carbon transport by walking. Do you know that it takes less than an hour from Yau Ma Tei to Sham Shui Po or from North Point to Causeway Bay on foot? You can also plan a walking trip in advance that helps reduce carbon emission and improves your health. Moreover, you can learn more about your community while strolling around.

Cycling is also an example of zero-carbon transport. But it is not easy for children to cycle on roads crowded with people and vehicles in downtown Hong Kong. Cycling tracks can be found in many places in the New Territories and are connected to the railway system. In this way, cycling is also a good choice of zero-carbon transport to the railway.







自駕減碳小秘方 Tips on low-carbon driving


如果有需要自行駕駛，儘管不能達到零排放，我們還是可以選擇實踐對環境較少損害的駕駛習慣：

If you need to drive by yourself, you can do it with less harm to the environment although zero-emission is impossible:



選擇省油的環保汽油車，例如符合歐盟五期廢氣排放標準或二零零九年日本廢氣排放標準的車輛，可減低碳氫化合物或氮氧化物的排放；注意汽車的能源效益，了解汽車對環境的影響；

Choosing petrol-saving eco-friendly vehicles, e.g., vehicles meeting the Euro V Emissions Standards or the 2009 Japanese Emissions Standards, both of which help reduce emissions of hydrocarbons or nitrogen oxides; alert to energy performance of motor vehicles and know more about their impact on the environment.



時速別超過90公里，可以減少耗油量。有研究曾指出，時速120公里的耗油量約是110公里的1.3倍，90公里的2.3倍。降低車速，減少耗油，減低碳排放。


Do not drive faster than 90 km/hour. You can reduce fuel consumption in this way. Studies indicated that at 120 km/hour, a vehicle consumed fuel 1.3 times of that at 110 km/hour and 2.3 times of that at 90 km/hour. Driving at a low speed helps reduce fuel consumption and carbon emission.






自駕減碳 小秘方


Tips on
low-carbon
driving




養成停車熄匙的好習慣，引擎空轉一小時，大約會耗費3.5公升的汽油。減少3分鐘引擎空轉，可減少12.5萬公噸二氧化碳排放，也可節省汽油的費用。



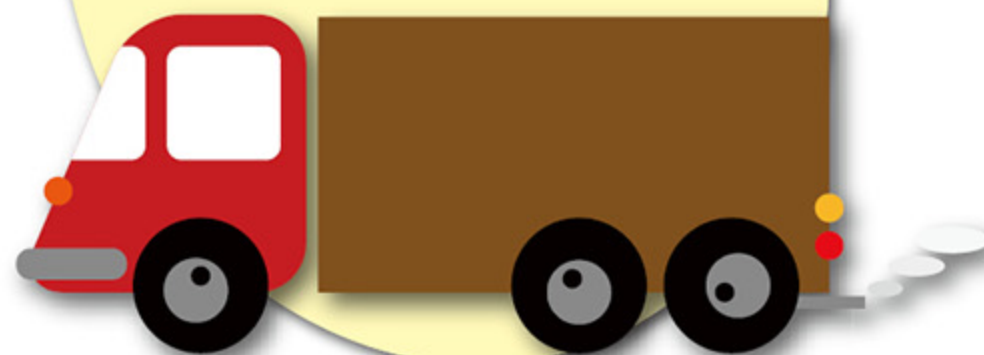
Switching off the idling engine. About 3.5 litres of petrol will be consumed if the vehicle is left idling for an hour. Reduction of an engine's idling time by three minutes can reduce emission of 125,000 metric tons of CO₂ and also save petrol cost.



切換至兩輪驅動模式，可較四輪驅動模式省油。
Switching to two-wheel-drive mode, which consumes less fuel than four-wheel-drive mode.



定期檢查胎氣，按載客需要調較合適的輪胎氣壓，行駛可更省油。
Checking tire pressure regularly and adjusting it according to the number of passengers in the car, which can save fuel.






自駕減碳 小秘方

Tips on
low-carbon
driving


卸下
不需要的行
李才駕駛，可
減少耗油量。

Unloading unnecessary
luggage before driving
and you can reduce fuel
consumption.



不急剎
車，也不大加速：
在公路上可以幫助汽
車節省近3成汽油。
Do not brake suddenly or speed up
the vehicle too quickly. You can
save nearly 30% of petrol in
this way.

選擇車
身較輕的車輛，同
等燃料每公升行走的里
數，會較車身較重的車輛
為多，碳排放也較少。
Choosing light-weight vehicles that can
go farther and emit less carbon than
the heavy-weight ones with the
same amount of fuel.



定期維
修保養，可以保
持引擎節能省油。
Keeping regular maintenance of
your vehicle to save fuel.



BANK



hotel



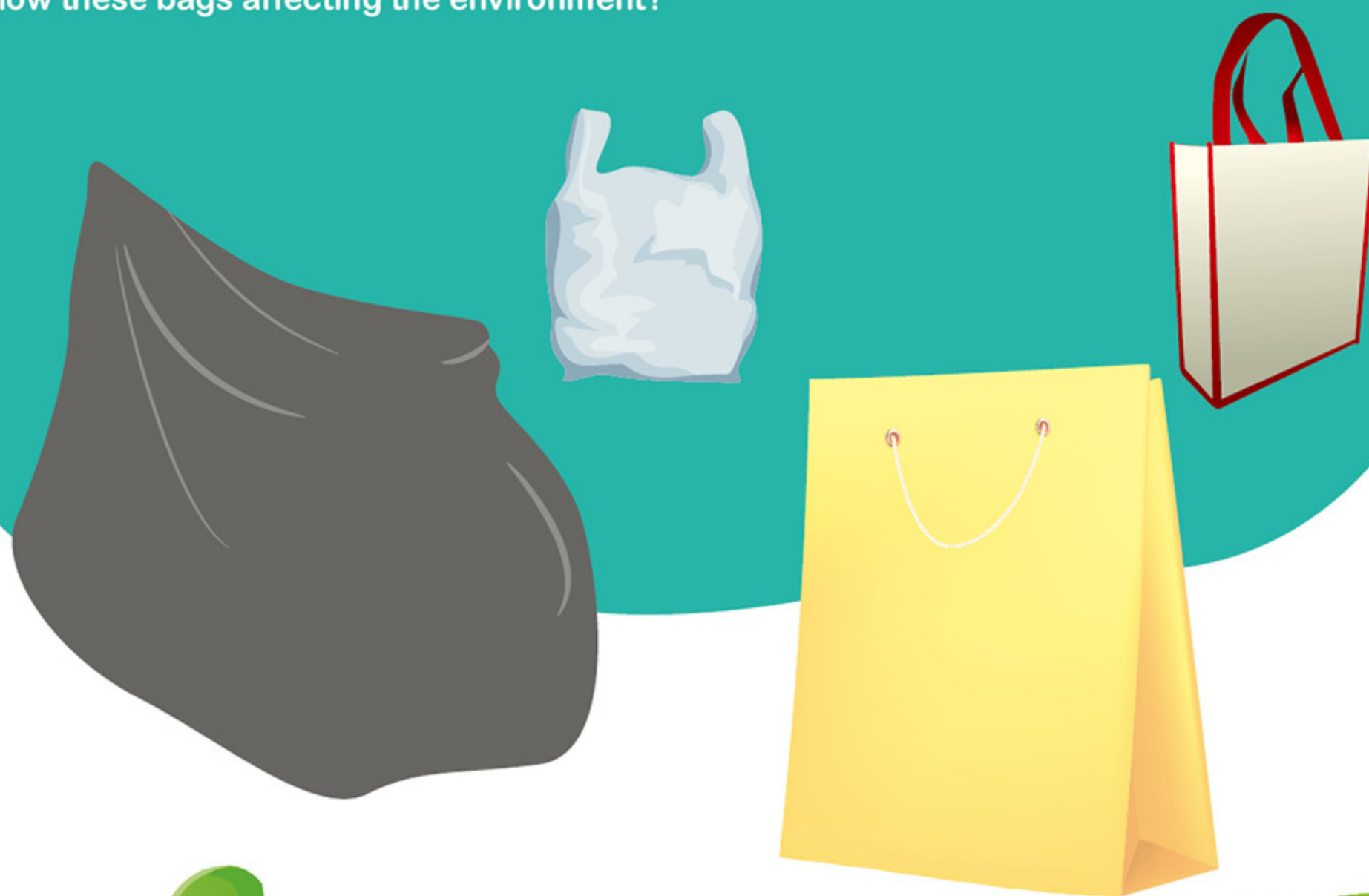
攜帶物 Belongings

不選膠袋，更不用紙袋

Do not use plastic bags and paper bags

在1980年代以前，膠袋或購物袋並不像今天般流行。街市裏買菜賣菜的人，不是用籃子或紙袋，就是用報紙和草繩載物，這些都是一些可分解的物質。時至今天，當大家外出購物的時候，總會攜着大包小包的膠袋或印刷精美的購物紙袋載物。可是，大家有沒有想過各式各樣的袋子會對環境有甚麼影響呢？

Plastic bags or shopping bags were not popular before the 1980s as they are today. In the old days, people buying or selling food in the market used baskets, paper bags, newspapers and straw ropes, which were all decomposable. But today, shoppers always carry a variety of plastic bags or finely printed paper shopping bags. Do you ever think that how these bags affecting the environment?



攜帶物 Belongings

原來我們日常使用的輕便購物袋，主要分為以下四種：

The shopping bags that we use in daily life generally fall into 4 categories:

膠袋 Plastic bags



主要由石油或天然氣等不可循環再生的資源做成，這些資源再生是有限的；
Mainly made from non-renewable petroleum or natural gas, which are hardly recyclable.

紙袋 Paper bags



先利用樹木製成紙漿，再由紙漿做成紙後加工而成。雖然樹木是可循環再生的資源，但是砍伐樹林來製造紙漿，不但摧毀樹林，也摧毀動物的棲身之所；

Made of pulp from trees. Although trees are renewable, cutting trees to make pulp destroys not only the forests but also habitats of animals;



攜帶物 Belongings

不織布袋 Non - Woven bags

大部份不織布袋是由聚丙烯製造，而聚丙烯是塑料的一種；
Mostly made from polypropylene, a kind of plastics;

編織袋 Woven bags

主要是由棉製造。
Mainly made of cotton.

攜帶物 Belongings

別以為紙袋可以被分解，對環境的損害較少。假如我們仔細探索紙袋的碳足印，就會發現生產紙袋的過程比生產膠袋更為消耗能源。這是因為砍伐樹林、運輸和製造紙漿均需要大量的電力；而印刷精美的紙購物袋，在後期加工印刷的過程也增加碳排放。由於紙袋和膠袋的循環重用比率沒有不織布袋及編織袋般高，這也導致紙袋和膠袋的碳足印較高。

It is wrong to think that decomposable paper bags cause less harm to the environment. A closer look at the carbon footprint of paper bags will reveal that it is more resource-consuming to produce paper bags than to produce plastic bags. Huge amount of electricity is consumed when cutting down and transporting trees and producing pulp, and even more carbon is emitted when paper is processed into finely printed paper shopping bags. Paper bags and plastic bags have higher carbon footprint since they are not as frequently reused as non-woven bags and woven bags.



電子器材：

Electronic devices:
Eco-friendly as well
as fashionable

趕時尚也要環保

我們出外的時候，總會帶着流動電話，甚至是平板電腦、相機等等。根據美國環境保護署估算，現時全球共有12億的流動電話正為人所用。這些電子器材的生產過程會消耗大量能源，增加大氣中的碳排放；可惜隨着新技術的開發，這些原本可以用上近十年的電子器材，往往在大約12 – 24個月後便會被人棄置。

We always bring mobile phones, or even tablet PCs, cameras, etc. when we go out. As estimated by the Environmental Protection Agency of the US, totally 1.2 billion mobile phones are in use in the world at present. Producing these electronic devices consumes huge amount of energy and resources, and emits carbon into the air. It is a pity that, owing to the technological progress, electronic devices are usually discarded after 12 – 24 months despite their service life of nearly a decade.



電子廢物會污染泥土和水源，因此我們不能單憑一時之快便把它們掩埋在堆填區裏去。要減低電子器材對環境的污染，我們可以：

Electronic waste pollutes soil and water so we should not bury them in landfills. To reduce environmental pollution caused by electronic devices, we may:



慎選電子器材，看看是否具備符合個人需要的功能、買下來、把它留在身邊更久；

Select the electronic devices with the needed functions, and use them longer once we buy them.



選擇重用或回收，讓電子器材循環再造，流動電話中金屬資源，均可以被拆卸下來重新再造；

Reuse or recycle electronic devices. Metal resources in the mobile phones can also be torn down and reused.



依據原廠指示充電，延長相關電池的壽命；

Recharge the battery according to the instructions of the manufacturer to prolong the service life of the battery.



捐贈予有需要人士，例如獨居長者等等。

Donate them to those in need, such as the elderly living alone.

別為未來留下 塑料瓶化石

Don't leave behind
plastic bottles
which may be fossilized



我們出外的時候，間常或會購買瓶裝飲料。可是，大家有沒有想過香港每天產生多少的塑料瓶廢物呢？根據香港環境保護署的報告，在2012年香港每天平均有216公噸膠瓶固體廢物，當中136噸是來自家居的。生產塑料瓶飲料，其實是相當耗費資源的。生產1公升的瓶裝水罐，大約消耗17.5公升的水，而每生產1噸塑料瓶飲料，大概會排放84公斤的二氧化碳，而塑料瓶被埋在泥土下亦難以分解。我們每消耗1支瓶裝水，地球環境也付出一分代價。

所以，我們要養成自備水的習慣啊！

We buy bottled drinks at times when we go out. However, have you ever thought that how many plastic bottles are discarded in Hong Kong every day? According to the Environmental Protection Department of Hong Kong, in 2012 Hong Kong produced an average of 216 metric tons of solid waste of plastic bottles per day, in which 136 tons were household waste. It is resource-consuming to produce drinks packaged in plastic bottles. The production of a 1-litre water bottle consumes about 17.5 litres of water, while the production of 1 ton of drinks packaged in plastic bottles will emit 84 kilograms of CO₂. Moreover, plastic bottles can hardly be decomposed even buried in the soil. The earth pays the price for every bottled drink that we consume.

Dear kids, we really need to develop the habit of bringing your own water bottle when going out!



地球未來在我手：

購物前・想清楚

The future of
the earth rests on our hands:

Think before we shop

雖然出外購物是一件樂事，但是我們真的需要這些東西嗎？要保護我們的環境，我們也要買得精明。把東西帶回家之前，我們可以先想想購買的物品會損耗自然生態嗎？這些物品真的會用得著嗎？

Shopping is fun but do we really need what we are going to buy? To protect our environment, we have to be wise buyers. Think before buying goods home if they cause harm to nature. Do we really need them?



地球未來在我手： 購物前·想清楚

The future of
the earth rests on our hands:
Think before we shop

購物前計劃一下是否
有實際需要，會不會
在家中已經有其他替代
品；

Make sure there are no
other substitutes at home
before buying.

購買耐用性高的產品，
減少浪費；

Buy durable goods to
reduce waste.

買簇新的物品前，
那些物品可跟別人
借用或分享的嗎？

Before buying new goods,
think about whether you
can borrow one from or
share with others.

只購買現在有需要的
東西，暫未有需要的
物品請留給下一位有
需要的顧客；

Only buy goods that are
needed now or leave them to
other customers in need.

觀察產品是不是過
分包裝，是不是捆綁
式出售？買了回家的
話，是否能用完所有
貨品？

Observe whether the goods
you are going to buy are
over-packaged or sold in
bundles. Make sure you
can use up all the goods
you are going to buy.

購買能夠循環再用、
循環再造的物品，避
免把用完即棄的物品
帶回家。

Buy reusable and recyclable
goods instead of the
disposable products.



旅行

負責任

Travelling

Be a responsible traveller

的旅行者

根據2008年聯合國關於《氣候變化與旅遊業》的資料顯示，旅遊業產生的碳排放，約為總碳排放的5%(1,307公噸)；當中又以交通運輸(979公噸)和居住(274公噸)的碳排放佔最多數。作為一個負責任的旅行者，我們去旅行的時候，其實可以從行程的小節上來保護地球的環境：

According to the United Nations' statistics on Climate Change and Tourism, carbon emissions from tourism is about 5% (1,307 metric tons) of the total carbon emissions, mostly from transportation (979 metric tons) and housing (274 metric tons). As a responsible traveller, we can protect the environment with some changes in a trip:



負責任的旅行者

Be a responsible traveller

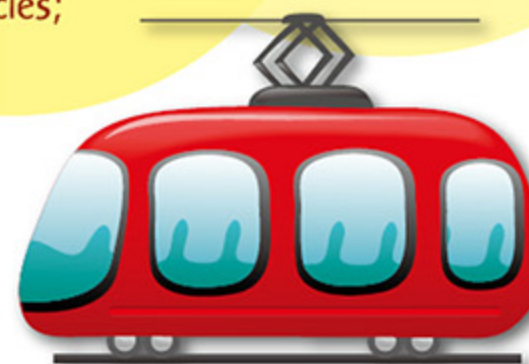
盡量使用集體運輸交通工具代替計程車；
Try to use mass transport vehicles instead of taxis;



將心比己，把旅遊的地方當作自己的家，不破壞當地的一草一木，保障當地的環境質素；
Take the tourist destinations as your hometown and don't do harm to the environment there;



飛機的碳排放遠較其他交通工具為多，如旅程期間需穿越不同國家或地區，可以考慮乘坐高速鐵路代替飛機；
Consider taking high-speed trains instead of planes if your trip covers different countries or regions since planes emit far more carbon than other vehicles;



負責任的旅行者

Be a responsible traveller

選擇當地生產的食材、光顧當地人開設的餐廳，不要點選需要遠程運輸的食材製成的食物；

Choose local restaurants and food instead of food transported from places far away;



離開旅館的時候，請關掉電燈和空調；
Turn off the light and air conditioner when you leave the hotel;



住旅館的時候，不要連夜開着電視；把空調調較至舒適的溫度，而非最低最冷；

Don't leave the TV overnight and to set the air conditioning on a comfortable temperature instead of the lowest during your stay in hotel;



帶備個人盥洗用具如牙刷、牙膏等等，從而減少即用即棄的數量；

Bring with you toiletries such as toothbrushes and toothpaste to reduce the use of disposable products;



負責任的旅行者

Be a responsible traveller

到旅遊景點遊覽，應保護當地的生態環境；不要遺留垃圾在大自然景點。

Protect the ecological environment of the tourist destinations and don't leave your rubbish at natural scenery spots.





遠足郊遊要環保

To protect environment when hiking

我們到本地郊野公園遠足郊遊所產生的碳排放，雖然較到外國旅遊為少，但是我們也要愛惜本土的自然環境。一些遠足前的計劃、旅行的原則，也可以幫助保護郊野生態：

Although carbon emission produced by hiking in our local country parks is less than that of travelling abroad, we still have to care for the local natural environment. Some preparations and rules can also help protect the ecological environment in the countryside:

自備能夠重覆使用的物資，例如毛巾、水瓶；避免攜帶用完即棄的物品

Bring with you reusable things such as towels and water bottles instead of disposable ones;



不攜帶不必要的雜物，既可減輕行李的重量，也可避免在途中留下垃圾；

Don't carry with you unnecessary sundries so that you may have a lighter baggage and avoid leaving rubbish on the way;



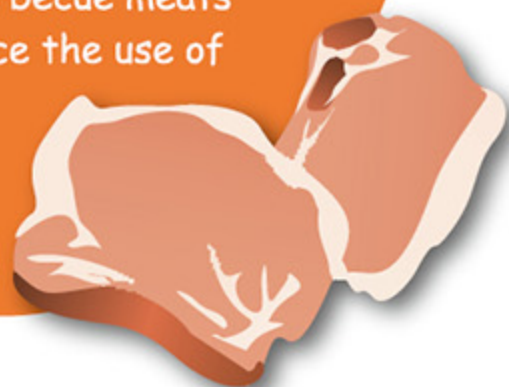


遠足郊遊環保要

To protect environment when hiking

如到燒烤場，可先計算同行者的食量，才購買食物；自行在家中準備燒烤食品，比購買已醃製的現成燒烤包，可減少更多包裝袋；

If you are going to have an outdoor barbecue, figure out how much your fellows can eat before shopping. Besides, preparing barbecue meats by yourself at home and not buy pre-packed barbecue meats that may reduce the use of packing bags;



盡量自備食物，或使用附近小食亭設施；減少帶備過份包裝的食品或飲品；

Try to bring your own food or buy some from small food shops nearby and not to bring over-packaged food or drinks; packing bags;



盡量乘坐集體運輸交通工具前往目的地，如需租車，應視乎人數選擇合適坐位數量的汽車，多人共乘；

Try to take mass transport vehicles to destinations. If you need to rent a car, choose one with appropriate number of seats depending on how many companions you have and try to share one with others;





遠足郊遊 要環保

To protect environment when hiking

野餐後別忘帶走垃圾；
Don't forget to take away the
rubbish after picnicking;



不要驚嚇或干擾野生
動物的生活，也不要
捕捉野生動物回家；
Don't frighten wild animals or
disturb their living and take
them home;



除燒烤場外，切勿在叢林
間生火，以免引起山火；
Never make a fire outside the
barbecue site to prevent forest
fire;



不要採摘野外植物，
保持自然景觀；
Don't pick wild plants;



大自然中的草坪和林木可以令空氣清新，也可調節溫度；

遠足郊遊的期間，我們可以享受一下天然的空氣浴，消除疲勞！所以，大家要好好保護戶外的林木啊！

The grass and trees in nature can clean the air and adjust the temperature for us to enjoy a natural air bath and relax ourselves during hiking. So we should really protect the trees in nature!



碳足印：
Carbon footprint

一切由「碳」開始 "carbon"
All starts with

小朋友，你知道甚麼是「碳足印」嗎？「碳」是一種非金屬化學元素，大氣中的許多氣體都含有碳，例如二氧化碳和甲烷等；二氧化碳是其中一種溫室氣體，會導致地球溫度上升。而日常生活中但凡使用燃料的活動、以及所有生物體的呼吸都會產生二氧化碳。目前，它的排放單位以千克甚至以噸計算。「碳足印」就是指日常生活中二氧化碳(CO₂)或與它同等的溫室氣體的排放量。

「碳足印」用以量度個人或機構在日常生活直接或間接排放了多少溫室氣體；也可以依據物品的生命週期，來計算生產各類糧食、塑料或電子產品的二氧化碳排放量。透過計算和比較「碳足印」，我們可以知道生產哪些糧食或物品，以減少損害環境。

Dear kids, do you know what is "carbon footprint"? "Carbon" is a non-metal chemical element, and many gases in the atmosphere contain carbon, such as carbon dioxide (CO₂) and methane (CH₄), in which CO₂ is a greenhouse gas that causes the rise in earth's temperature. Moreover, in daily life, all activities using fuel and the breath of organisms will produce CO₂. At present, its emission is calculated in kilogram or even ton. "Carbon footprint" means emission of CO₂ or greenhouse gas in daily life.

"Carbon footprint", is used to measure the amount of greenhouse gas directly or indirectly produced by individuals or organizations in daily life, and to calculate the amount of CO₂ emissions in production of food, and plastic or electronic products. By calculating and comparing "carbon footprints", we can know what products will harm the environment, and reduce environmental damages.



以下是一些碳排放例子：

Let's see some examples of CO₂ emissions:

???
Guess??

想

想

我們在哪裏留下碳足印?
Have we left carbon
footprints.?

衣 CLOTHING

- 👕 開採大自然資源製造衣物
Exploiting natural resources to make clothes
- 👕 機械式生產衣服時消耗的能源
Energy used in clothes making
- 👕 從工廠運輸衣物到時裝店所用的燃料
Fuels used for transporting clothes from factories to sho
- 👕 洗衣機洗衣物所消耗的能源
Energy used by washing machines for washing clothes



以下是一些碳排放例子：

Let's see some examples of CO₂ emissions:

食 FOOD

- 動植物在代謝過程中產生的二氧化碳或甲烷
CO₂ or CH₄ produced by animals and plants during metabolism
- 飼養牲畜時農舍消耗的能源
Energy for farmhouses in raising livestock
- 種植牲畜飼料作物所產生的二氧化碳
CO₂ produced from crop growing to livestock feed
- 食物運輸與保存所用的燃料
Fuels used for transporting and storing food
- 煮食時產生的二氧化碳
CO₂ produced by cooking
- 丟棄廚餘或剩食所產生的氮氧化物及甲烷
Nitrogen oxides and CH₄ produced by discarding kitchen wastes or leftovers



以下是一些碳排放例子：

Let's see some examples of CO₂ emissions:

住 LIVING

🏠 看電視、聽音樂、使用電腦

Watching TV, listening to music and using computers

🏠 使用各類電力及電子裝置 (即使在備用狀態)

Using various electrical and electronic devices
(even if they are in a standby state)

🏠 使用照明系統

Using a lighting system

🏠 使用空氣調節系統

Using an air conditioning system

🏠 使用煤氣或其他天然氣

Using gas or other natural gases

🏠 使用電風筒

Using hair driers

🏠 冷藏食物

Refrigerating food




以下是一些碳排放例子：

Let's see some examples of CO₂ emissions:

行 TRANSPORTATION

 乘搭升降機或利用電梯

Using a lift or an escalator

 乘搭交通工具

Using vehicles

 攜帶各類電子製成品

Using various electronic products



一個塑料袋的自白：我的碳足印

A plastic bag's message: My carbon footprint

大家好，我是一個塑料袋。當我從機器生產出來的一刻開始，我就在地球留下碳足印。我和兄弟姐妹被生產商包裝在一起、在乘坐貨車到商店的過程中，都在消耗地球能源，產生大量二氧化碳。大家別以為把我們棄置到垃圾桶，碳排放便會停止。事實上，垃圾車把我們收集到堆填區，還是要利用燃料的。我們的一生，不斷製造大量二氧化碳，所以，別輕視一個小小的塑料袋！如果大家不珍惜我們、每天不停地丟棄、然後再購買，我的家族就不斷地在地球留下大量碳足印！相反，若大家能夠減少使用塑料袋，把我們循環再用、回收再造，便可以減低碳足印，大大減少對地球的傷害。

Hello, I am a plastic bag. From the moment I was produced, I began to leave carbon footprints on the earth. When my family and I are transported in a van to the shops after we are packed together, we are consuming the earth's resources and producing massive CO₂. Don't think that carbon emission will stop when you throw us into the dustbin. In fact, dust carts need fuel to take us to the landfill. In our lifetime, we keep producing a large amount of CO₂. If you don't cherish us and keep throwing and buying us every day, we will keep leaving carbon footprints on the earth. On the contrary, if you use fewer plastic bags and recycle them, there will be fewer footprints to harm the earth.

ORGANIC



膠袋的碳足印 Carbon footprint of a plastic bag :



生產塑料袋時，工廠排出二氧化碳
CO₂ is emitted from factories during
production of plastic bags



貨車運送塑料袋產生二氧化碳
CO₂ is produced when vans
transport plastic bags

如果用新的塑料袋，
生命週期會循環，
不停產生二氧化碳……

Using new plastic bags
keeps on producing CO₂...



處理棄置塑料袋時需要能源
Energy for disposing plastic bags



購物時使用塑料袋
Plastic bags are used in shopping

齊來估算一天的碳足印

Let's estimate carbon footprint in a day

雖然現時並沒有完美的碳足印量表，但我們可以從個別活動估算每人每天的碳排放量。雖然每天的碳排放量只是小數字，但日積月累，它對地球的影響可不少啊！

Although there is not yet a perfect carbon footprint table, we can estimate the daily carbon emission of a person. Although carbon emission seems not much each day, it will accumulate to have huge impact on the earth over time!



減碳小法寶

Magic key to reducing carbon emission

善用天然光，
減少使用電燈照明。

Make the best use of
sunlight and reduce the use
of electric lighting.

改用節能器材，
例如省電燈泡、能量
效益高的電器。

Use energy-saving
equipment, such as compact
fluorescent lamp and
energy-efficient electrical
appliance.

不要讓電器長期處於待機備
用的狀態，例如拔掉電熱水
瓶的插頭、改用保溫壺。

Do not leave electrical appliance on
standby mode for a long time: Unplug
electric thermos bottle and use
thermo jug to keep water hot.

減碳小法寶

Magic key to reducing carbon emission

乘搭集體運輸工具，
代替自行駕駛。

Use public
transport instead
of driving cars.

節約用電，例如真正
有需要時才開啟
空調或暖爐。

Save electricity, turn on
the air-conditioner or
stove when necessary.

多吃蔬果，
減少吃肉。

Eat more veggies and
fruits but less meat.

減碳小法寶

Magic key to reducing carbon emission

不盲目追求新產品，不購買沒有需要的東西，減少丟棄物品。生產量減少，碳排放也減少。

Do not blindly scramble for new products, do not buy things you don't need, and discard as few articles as possible. Emission will decrease when production is reduced.

做好垃圾分類，
回收舊物品。

Separate rubbish and
recycle old things.

減少使用紙張
和塑料袋。

Use less paper and
plastic bags.



想
一
想

小朋友，您有沒有想到其他減碳方法？

Kids, can you come up with any other ways to reduce carbon emission?

環保 4R for environmental protection



各位小朋友也曾經聽過「環保4R」，即源頭減量、重複使用、循環再造和替代。可是，大家有沒有想過為甚麼它們是四位一體？另外，為甚麼有些書籍說「轉廢為能」而不是「替代」呢？

Dear kids, you may have ever heard about "4R for environmental protection", that is, reduction by prevention and minimization, reuse, recycling and replacement. But, have you ever thought of why they are inter-related? And, why do some books say "recovery" instead of "replacement"?

四位一體的廢棄物管理層級 Four-level integrated waste management

環保4R的概念並不是新鮮的事物。早在1975年，歐洲聯盟委員會就已注意到減少和處理廢物的重要性，因而規劃出一套廢棄物的管理層級：

根據這概念，處理廢棄物是有既定的方法。最根本和最重要的方法是源頭減量，因為廢棄物本身是可以預知、避免或減至最少。一般來說，廢棄物主要源自生產線(如工業廢料)或物品使用後(如家居垃圾)。要成功實踐源頭減量，一方面需要提升生產技術、減少產生工業廢料；另一方面也需要大家共同合作，減少購買非必要的物品，降低因浪費而產生的廢棄物數量。

「重複使用」和「循環再造」是透過「物盡其用」的理念來減少廢物的數量。簡單來說，「重複使用」就是不輕易棄置仍然可以使用的舊物品。當物品不能再使用的時候，我們可以考慮回收該物品進行循環再造。「循環再造」可以是再生(例如是再造紙)，或純粹回收原料(例如金屬物料、舊電池等)。如果處理得宜，是可以完全消除廢棄物。



4R for environmental protection is nothing new. As early as in 1975, European Committee has noted the importance of reducing and disposing of wastes, and worked out a set of waste management levels (waste hierarchy):

According to this concept, we dispose waste in a set of guidelines. The most basic and important way is reduction by prevention and minimization, for we prevent, avoid or minimize waste. Generally speaking, waste mainly comes from production line (e.g. industrial waste) or use of goods (e.g. household garbage). To reduce waste by prevention and minimization, on the one hand, we need to produce less industrial waste by improving our production technology; on the other hand, all of us should reduce waste by buying less unnecessary goods.

“Reuse” and “recycling” reduce waste by “making the most of things”. In simple words, “reuse” tells us not to abandon old articles that are still useful. For articles that are no longer useful, we can recycle them. “Recycling” can mean regeneration (e.g. recycled paper) or simply raw material recovery (e.g. metal materials and old batteries). So waste can totally be eliminated if being handled properly.

「替代」還是「轉廢為能」 “Replacement” or “recovery”

在「廢棄物管理層級」的概念中，第4個處理廢物的方法是「轉廢為能」，通過厭氧化解、焚化、氣化、高溫分解等方式處理廢棄物，從而產生燃料、熱能和電力。不過，「轉廢為能」的方法有一定局限性，需要具備相應的基礎建設及技術，才可以有效進行。

不過，從個人或機構的層面，我們可以作出合適的抉擇，選購對環境損害最少的物料，替代那些破壞環境的產物，從而保護環境。例如我們可以選擇使用環保紙來代替利用紙漿製作的紙張，以減少砍伐樹木。

The fourth way of disposing waste in the concept of “waste hierarchy” is “recovery”, which means disposing waste by means of anaerobic digestion, incineration, gasification, pyrolysis, etc. that will produce fuel, heat and power. However, “recovery” has its limitations, for it requires relevant infrastructure and technology for implementation.

Anyway, either as individuals or organizations, we can make right choices and choose materials that do minimum harm to the environment instead of those polluting the environment. For example, we can use environmental friendly paper instead of paper made from pulp so that fewer trees will be cut down.





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