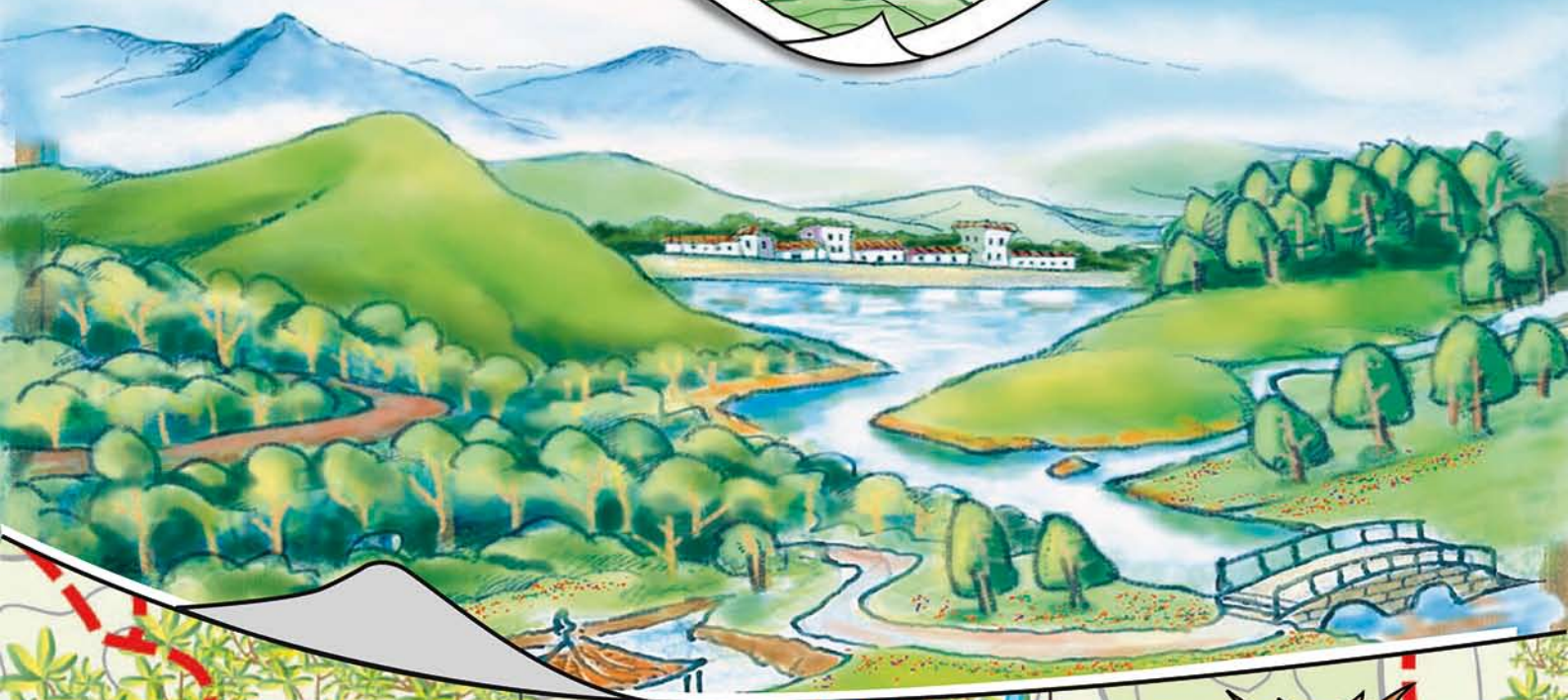


探索地圖

Understanding Maps



齊來學會用地圖
Enjoy learning about maps



香港特別行政區政府地政總署測繪處
Survey and Mapping Office, Lands Department
The Government of Hong Kong Special Administrative Region

2014年第二版
2014 Second Edition

「大家好！我是小青蛙達仔，生活在森林的一角。從前，我每天都遙望着遠方的一棵大樹，很想到那兒玩玩。不過，因為我害怕迷路，所以一直都未敢出發。直到有一天……」

'Hi! My name is Ted. I am a little frog living in the corner of a forest. Everyday, I was admiring a big tree far-away. I really wanted to go and play there. However, I was afraid that I might get lost. Until one day ...'



怎樣才可走到大樹那裡去呢？
How can I reach that big tree?



讓我傳授一些可以走到那兒的秘技給你吧！
I can show you how to get to the big tree.



達仔遇見一位來到森林的資深旅行家——貓頭鷹博士。

Ted met Dr. Owl, a wise traveller, who came to the forest.

哈哈，太好了！
Sure. That's wonderful!



「達仔，你只要學會使用地圖，就能找出目的地的位置，並可預先計劃行程路線，快捷和安全地到達你想去的地方。」

'Ted, if you know how to use a map, you can locate your destination. You can also plan your route and get to that place quickly and safely.'



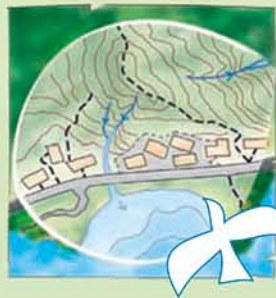
「博士，甚麼是地圖呢？」

'Oh, just what is a map, Dr. Owl?'



「簡單來說，地圖是一張運用點、線和面的符號，把地面各種景物圖像化的圖畫。」

'A map is simply a drawing that use point, line and area symbols to show features on the earth surface.'



看地圖的時候，我們就好像是天上的小鳥，俯覽地面的景物。

When you read a map, just imagine you are a bird that views the ground from the sky.



「除了計劃路線外，地圖還有其他用處嗎？」

'Besides finding our way, what else can a map be used?'



「對社會發展、環境規劃、行政和土地管理的互作來說，地圖都是不能缺少的啊！」

'Maps are indispensable tools for social development, environmental planning, administration, and land management.'

地圖上的符號

Symbols on a Map



「地圖採用了不同顏色和形狀的符號，來表示各種地面景物。」

'A map uses symbols of different colours and shapes to show various ground features.'



「我要怎樣才可知道這些符號的意思呢？」

'How can I tell the meanings of these symbols?'



「地圖通常附有圖例，用以列舉符號和解釋它們的意思，你有遇到不明白的，到那裡查看就可以了！」

'A map usually has a legend that shows symbols and their meanings. By referring to the legend, you can tell what ground features the symbols represent.'



「如果我要找每個符號的解釋，那不會太麻煩嗎？」

'Won't it be too inconvenient that I have to look up the meaning for each symbol?'



「你當然不需要這樣做。其實地圖符號的應用有着許多的慣例，就好像用藍色來表示如河流和湖泊的一些與水有關的景物。當你熟悉這些慣例後，便不用每個符號查看了。」

'Not really. There are many conventions for the use of map symbols. For instance, blue colour is used to show water features such as sea, rivers and lakes. Once you become an experienced map user, you don't have to look up the meaning of every symbol.'



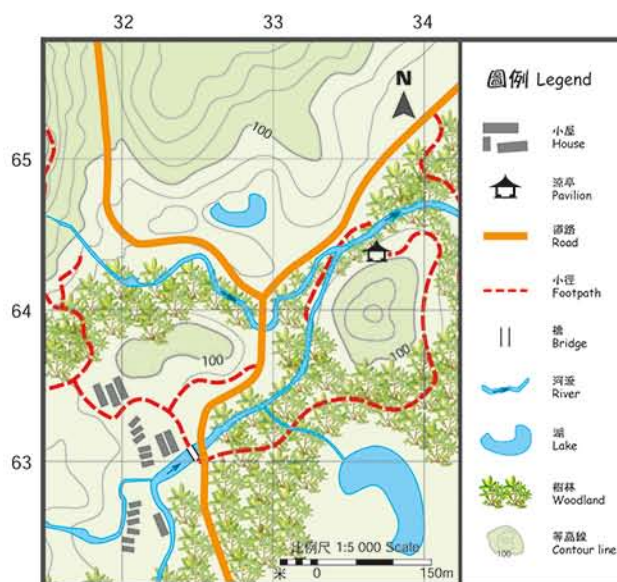
「真希望有初學者也看得懂的符號啊！」

'How I wish I can decipher those symbols!'



「是有的。試看看右邊的符號，你能否告訴我它代表甚麼景物呢？」

'Here you are! Can you tell me what the symbol on the right represents?'





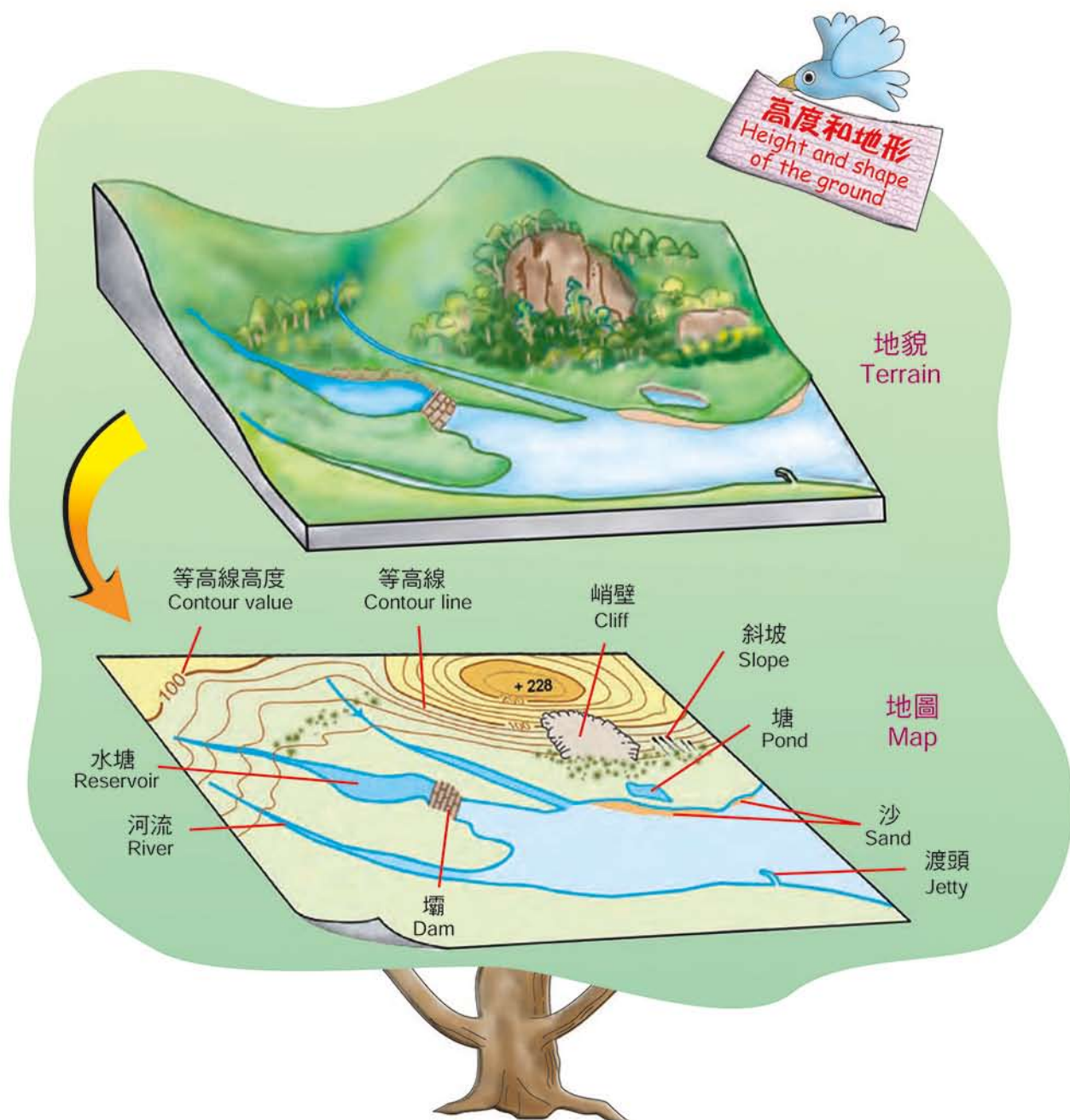
「從地圖了解高度和地形很重要，特別是對那些山巒起伏的地方。」

'It is important to understand the height and shape of the ground from a map, particularly those hilly areas.'



「真奇怪！怎麼可能在地圖上表示起伏不平的地形呢？」

'That's amazing! How does a map show the height and shape of the ground?'





「地圖上有多種表示高度和地形的方**法**，例如使用**高程點**、**等高線**和**分層設色法**等，當中以**等高線**最為常用。以下的例子正好解釋使用等高線描述高度的原理。」

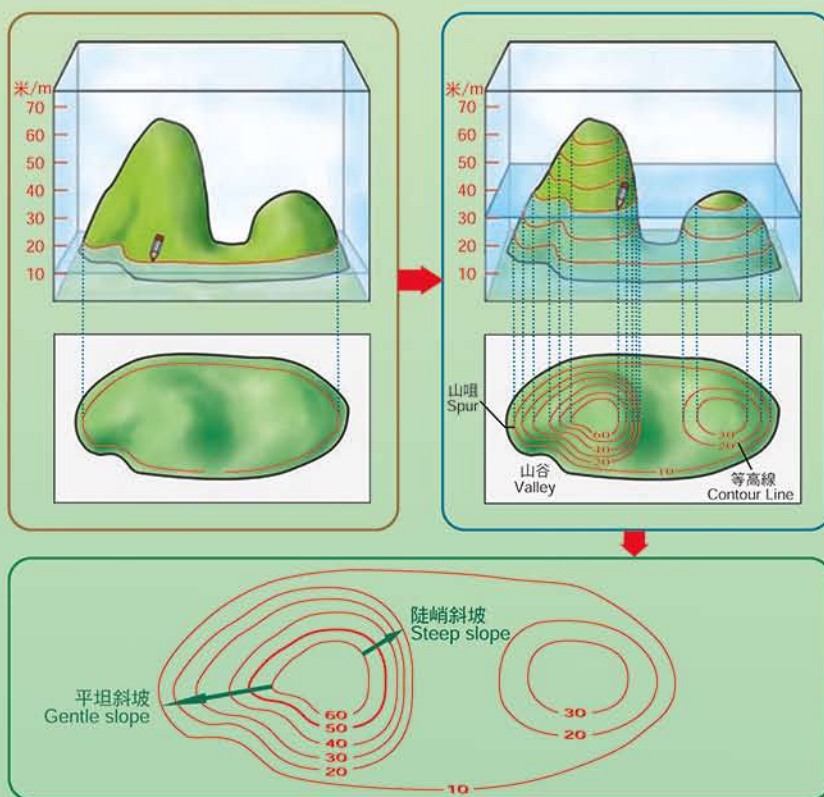
'There are many ways to show the height and shape of the ground on a map such as spot heights, contour lines and elevation tints. Among these, contour lines are the most commonly used. The illustration below shows how contour lines can depict relief.'



等高線的概念
The Concept of
Contour Lines

把假山模型放進一個畫有相同距離刻度的魚缸內，然後逐格注水至缸頂。每當水注滿一格時，就在假山表面畫下當時的水位，完成後就能得到表示假山高度的等高線。

Place a mountain model in a fish tank marked with equal distances on its side. Pour water into the tank and draw a line on the model when the water reaches each mark. Then transpose the lines on the model mountain onto the paper. These become contour lines.



等高線之間的距離越密，表示地勢越陡峭。
The closer the contour lines are, the steeper the slope is.





比例、方向和方格網

Scale, Direction and Grid Lines



如果有一張地圖，它的比例是1 : 5 000 的話，當我們把它放大 5,000 倍後，地圖上的景物就會變得如實物般一樣大小。與1 : 5 000 比較，1 : 10 000 是較小的比例。兩張大小一樣但分別用了這兩種比例製作的地圖，用較小比例（即1 : 10 000）的那張，顯示出來的資料會較少，但它能覆蓋的地面範圍就較大。

If the scale of a map is 1 : 5 000 and we enlarge it to 5,000 times, that is how big the size of map features on the ground will be. As compared to 1 : 5 000, 1 : 10 000 is a smaller scale map. For two maps of the same size but in scales 1 : 5 000 and 1 : 10 000, the 1 : 10 000 scale map will cover a larger area but shows fewer details.

甚麼是**比例**？
What is **Scale**?



比例 1 : 5 000 Scale



比例 1 : 10 000 Scale



地圖上的比例尺有助我們知道景物的實際大小，以及任何兩個地方之間的距離。

The scale bar helps us to find out the actual size of the ground features and also the distance between any two places.



步驟 1 擺放繩子的一端在起點上。
Step 1: Place one end of the string at the starting point.



步驟 3 量度繩頭與記號間的長度。
Step 3: Measure the length of the string from the beginning to the marked point.



步驟 2 依着路的形狀彎曲繩子，並在路的末端畫記號在繩子上。
Step 2: Bend the string to follow the curved road and mark the end point on the string.

$$4 \text{ 厘米(cm)} \times 500 = 2,000 \text{ 厘米(cm)}$$

$$2,000 \text{ 厘米(cm)} / 100 = 20 \text{ 米(m)}$$

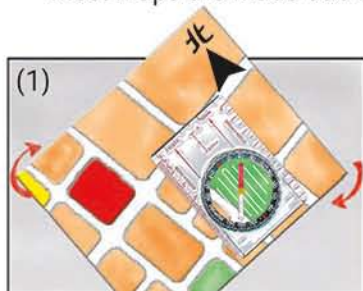
步驟 4 把所得的長度乘以比例，就能計算出彎路有多長了！
Step 4: Multiply the measured length by the map scale to obtain the length of the road.

方向很重要
Direction is important

☀ 在使用地圖時，能辨別方向也很重要啊！
When using a map, it is important to know the direction.

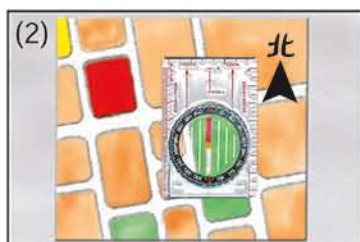
☀ 方向大致可區分為：
Direction can be distinguished as：

☀ 大部分地圖的正北方都是向上的。
Most maps are made due north.



平放指南針 在地圖上，轉動地圖，直至指南針的北指針與地圖的向北指標處於同一方向。

Place a compass on the map. Rotate the map until the north arrow of the map is in the same direction as the north arrow on the compass.



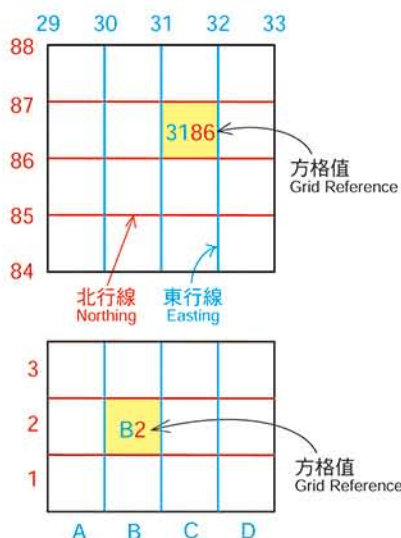
這時候，地圖上景物的方向就與它們實際的方向一樣了！

Then the direction of features on the map will match with those on the ground.

甚麼是**方格網**和**方格值**？
What are **Grid Lines** and **Grid Reference**?

方格網由地圖上的垂直線和水平線組成。它們常被分別稱為「東行線」和「北行線」。我們可以藉讀取方格網的代表值，即「方格值」，來確定景物存在的位置。方格值是先用東行線後用北行線這兩個數值合併出來的一個新數值，它一般與坐標系統的數值有關（上圖），但也可以是字母與數字的簡單組合（下圖）。

Grid lines are vertical lines and horizontal lines on a map. They are often called "Eastings" and "Northings". The grid lines help identify location of ground features by means of a Grid Reference, which is the cross of "Easting" and "Northing" values (Upper figure). Grid Reference can also be made simple to pinpoint an area on the map (Lower figure).



聽過貓頭鷹博士的講解，達仔對閱讀地圖已有了初步的認識。

After the explanation of Dr. Owl, Ted has acquired the basic knowledge of map-reading.



「達仔，是時候學以致用了！」

'It's time for you to practise what you have learned, Ted.'



「博士，我們就用地圖前往大樹那邊，好嗎？」

'We can use the map to help us reaching the big tree. Can't we?'



「好主意！我就給你這張地圖，看你能否好好利用它。」

'That's an excellent idea. You can have this map and see if you know how to use it.'

達仔接過地圖，計劃好要走的路線，並於重要的位置畫上記號之後，就和貓頭鷹博士展開探險旅程了。

With the map in hand, Ted planned the route and marked some critical points on the map. Then he began the adventure with Dr. Owl.



當走到地圖第一站的位置時，達仔遇上了正在前往河邊涼亭的小烏龜。小烏龜問達仔：「我還要沿小徑走多遠，才可到達涼亭那裡呢？」達仔於是在地圖上量度剩餘小徑路程的長度，並把計算出來的實際距離告訴了小烏龜。

Upon reaching Point 1 on the map, Ted met a little turtle who was on his way to the pavilion by the riverside. "How long do I still need to go before I can reach the pavilion?" asked the little turtle. Ted measured the length of the footpath leading to the pavilion and calculated the distance for the little turtle.



1. 小朋友，你也能替小烏龜找出答案嗎？

Can you also find the answer for the little turtle?



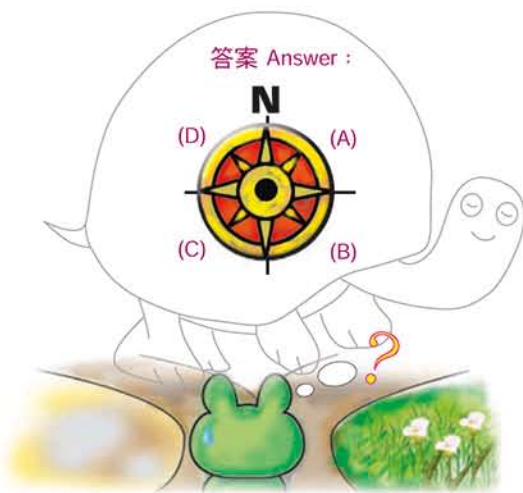
到了第二站，在達仔面前的正是一條分岔路。就在他迷惘之際，貓頭鷹博士提醒他該先用指南針辨別方向。最後，達仔選擇了左邊的小徑繼續前進。

At Point 2 while Ted was wondering which footpath he should take, Dr. Owl reminded him to use a compass to find his direction. Finally, Ted chose the one to the left and pressed forward.



2. 小朋友，你能夠說出達仔當時要前進的方向嗎？

Can you tell in which direction Ted was going at that moment?





圖例 Legend



小屋
House



涼亭
Pavilion



道路
Road



小徑
Footpath



橋
Bridge



河流
River



湖
Lake



樹林
Woodland



大樹
Big Tree



等高線
Contour line



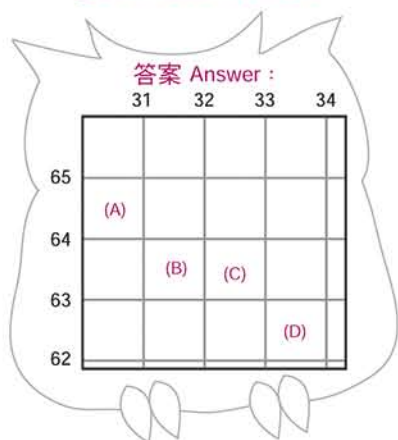
達仔沿着選對的路走到第三站，他在這裡又碰見一隻受傷不輕的小白兔。貓頭鷹博士連忙叫達仔找出他們身處位置的方格值，以便打電話告訴救護人員如何前來。

Ted spotted a badly injured rabbit when he reached Point 3. Immediately, Dr Owl asked Little Ted to locate the grid reference of their position and called for help.



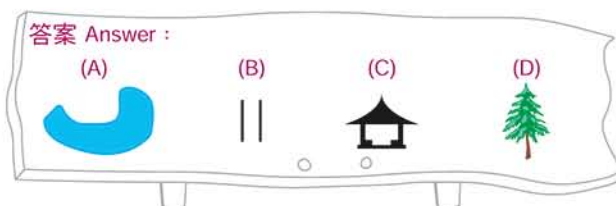
3a. 小朋友，你也可以說出對的方格值嗎？

Can you also find out the grid reference?



3b. 你在3264的方格內找到甚麼呢？

What can you find at the grid reference 3264?



小白兔獲救後，達仔順利走到第四站，並發現在東北方距離約25米處有一座涼亭，但地圖上卻沒有相關的顯示。達仔心想：那涼亭會不會是新建造的呢？

When Ted reached Point 4, he found a pavilion at the north-east and about 25 metres away but it was not shown on the map. Can this be a newly constructed pavilion?



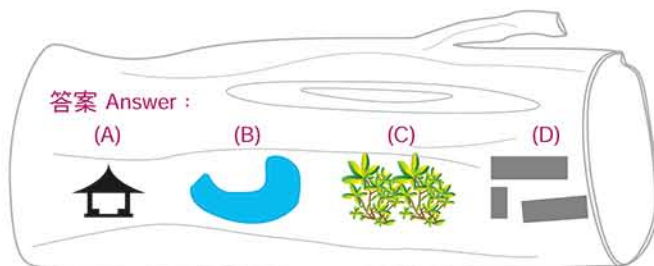
4a. 小朋友，你可以把涼亭加到地圖的正確位置上嗎？

Can you add this pavilion on the map at the correct location?



4b. 由第三站走到第四站，達仔途中會經過甚麼地方呢？

What did Ted pass by when he hiked from Point 3 to Point 4?





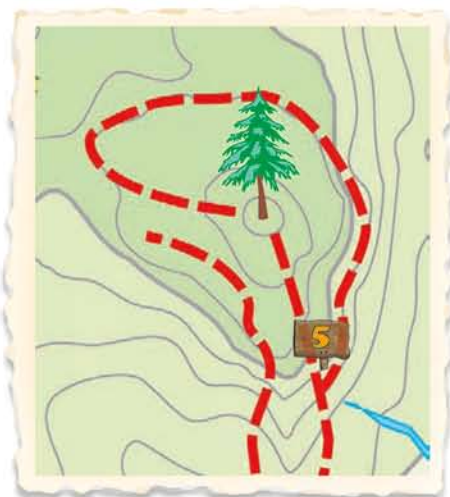
走了好一段路，疲累的達仔終於到了第五站。眼看還要攀上陡峭的斜坡才可到達大樹旁，達仔此時感到有點氣餒。於是，貓頭鷹博士就鼓勵他，並提示說：「可通往大樹那裡的路，並非只有要攀爬陡峭斜坡的那一條。」

After a long walk, Ted was totally exhausted when he reached Point 5. He was very discouraged when he saw how steep the slope was. Dr. Owl cheered him up and hinted that the footpath along the steep slope was not the only way.



5. 小朋友，你能替達仔找出較易走的路嗎？

Can you find an easier way for Ted?



答案 Answer



4b. 另一條小徑比較平坦易行。
C (樹林 Woodland)



- 4a. 約315米 / about 315 metres
1. D (西北 North-west)
3a. B (3163)
3b. A (湖 Lake)
4a. (新涼亭位置 position of New Pavilion)

分享篇 Experience Sharing Corner



「雖然我有豐富的旅行經驗，但我在旅行時也會帶備地圖，當然還有指南針和流動電話這兩位好搭檔。」

'Even with much experience, whenever I travel I would bring along a map, a compass and my mobile phone.'



「從今天起，我會繼續用地圖探索更多我想去的地方，別人再也不能叫我做井底之蛙了！」

'From now on, I will use a map whenever I go travelling. Then I am no longer a frog in a well.'



「真沒想到用方格值的幾個數字，就能告訴救援人員傷者的位置，還能救回我一條兔命！」

'I had never thought that using the grid reference can tell the location of the injured and help with the rescue.'



「即使我走得有多慢，只要能從地圖中找出與目的地的距離，準確地預計旅程所需的時間，我就不怕天黑都歸不了家啊！」

'Knowing the distance of my journey from the map, I can estimate the time that I need to travel to my destination.'



小朋友，你可以嘗試自己畫一張地圖，表示你如何由家裏走到學校或附近的公園。開始前，要先設計好符號和選擇合適的地圖比例呀！

Can you draw a map showing how you travel from home to school or a nearby park? Remember, before you start, design your symbols and choose a suitable map scale.



「地政總署測繪處是香港特別行政區負責繪製地圖的部門。」

'The Survey and Mapping Office of the Lands Department is the official mapping agency of the Hong Kong Special Administrative Region.'



「那麼，測繪處製作了哪些地圖呢？」

'What kinds of map does the Survey and Mapping Office produce?'



「測繪處的產品有地形圖、街道地圖、郊區地圖……」

'Survey and Mapping Office produces topographic maps, street guides, countryside maps....'

「地圖有不同的用途和比例，圖上的資料也需經常修訂，因此，要緊記使用合適和最新版本的才好喇！」

'Maps are produced for different purposes and in different scales. Information on the map needs to be revised regularly. Therefore, it is important to use an appropriate map and its latest version.'



「知道了！」

'Yes, certainly!'

編者的話

地圖與我們的日常生活息息相關。它除了是搜尋地方和計劃路線的有效工具，在其他方面都被廣泛應用。不過，要看懂地圖信息，就必需掌握閱讀地圖的知識和技巧。

我們希望以簡單活潑故事情節，引起孩子們閱讀這份單張的興趣，從而增進他們對地圖的認識。我們也向老師和家長們誠意推薦，以這份單張作輔助教材和親子活動之用。

Editor's Note

Maps are closely related to our daily life. They are effective tools for location-searching, route-planning and are also used extensively in many other ways. In order to understand information on the map, we need to have some basic knowledge in map-reading.

Through the story of the little frog, we hope to arouse the interest of children to learn about maps. Teachers and parents may use this leaflet as a teaching tool helping children to acquire some map-reading skills that will be useful for life.