

資訊科技教育**教學法**系列： 在小學策略性運用**資訊科技** 設計教學活動以促進有關**氣候變化**的探究式學習



香港中文大學 學習科學與科技中心 (CLST)

Centre for Learning Sciences and Technologies (CLST)
The Chinese University of Hong Kong



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小學 AI 班

第一節：

日期：2018/2/3 (星期六)

時間：09:30 - 12:30

地點：香港中文大學崇基校園何添樓M1室

第二節：

日期：2018/2/10 (星期六)

時間：09:30 - 12:30

地點：香港中文大學崇基校園何添樓M1室



課程目標

本課程旨在介紹教師如何運用地理信息系統（GIS）和其他相關資訊科技資源，以促進中學生對氣候變化課題進行探究式學習（Inquiry-based Learning, IBL）。

課程結束後，參加者應能：

- a) 了解GIS及相關資訊科技資源的學習機會、特點、優點和限制；
- b) 從互聯網搜尋和獲取免費地圖層，並運用簡單的GIS應用程式創建和修改；
- c) 深入了解氣候變化問題，及認識有關減緩、適應和應變措施，以應對氣候變化；

課程目標

- d) 了解GIS和相關資訊科技資源的教學應用，並適當運用流動裝置，以促進學生進行探究式學習；
- e) 運用GIS和相關資訊科技資源，以設計和整合關於氣候變化課題的探究式學習活動，並應用於其他課題如環境教育；及
- f) 適當運用最新科技以豐富學生的學習經驗，例如：便攜式數據採集儀器和手持式氣象台、球面投影系統及其他創新設備，用於收集和呈現空間信息等。

第一節

1. 介紹 氣候變化問題 及相關課程的探究式學習教學應用
2. 介紹 GIS 及 資訊科技相關資源
(例如：Esri Story Maps、Esri ArcGIS Online、Survey 123, Google Maps、Google Earth、EduVenture等)
3. 討論運用GIS及相關IT資源的教學範例，以促進與氣候變化課題有關的探究式學習
4. 作業簡介

第二節：

1. 作業討論及意見回饋
2. 介紹數碼傳感器和便攜式數據採集儀器，以進行有關氣候變化的探究
3. 介紹運用學習管理系統 (LMS) 和其他電子學習工具 (例如：HKEdcity VLE、Google Classroom、Google Drive, Microsoft o365 等) 管理學生學習進程
4. 運用學習管理系統和電子學習工具，設計及整合探究式學習教材
5. 總結、討論及問與答環節

1. 介紹 氣候變化問題 及 相關課程的探究式學習教學應用



有關氣候變化問題教學資源

Stanford

SCHOOL OF EARTH, ENERGY
& ENVIRONMENTAL SCIENCES



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School of Earth, Energy & Environmental Sciences

Explore ▾

Climate Change Education

Home

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Curriculum

Research

Resources

Enter your search keywords here...



Middle and high school teachers worked in groups with climate experts to examine data that provide evidence of the climate changing.

A large body of scientific information indicates that global climate change is unequivocal, almost certainly is caused mostly by human activities, is already causing significant harm, and as it continues, holds great risks for our future. Addressing the risks of climate change requires global and local action to reduce greenhouse gases as well as to reduce vulnerabilities to climate change impacts.

Global climate change and its impacts on people and resources pose serious societal challenges. The actions we take today will influence the path of future greenhouse gas emissions and the magnitude of warming. They will also affect our ability to respond and adapt to changes, and to reduce vulnerability of

because

<https://pangea.stanford.edu/programs/outreach/climatechange/>

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有關氣候變化問題教學資源



CLIMATE CHANGE LIVE
A DISTANCE LEARNING ADVENTURE

GRANTS
Kick start an action project at your school

REGISTRATION | WEBCASTS | FOR TEACHERS | FOR STUDENTS | MULTIMEDIA | PARTNERS | TRANSLATION

SHARE [Facebook] [Twitter] [Pinterest] [Google+]

The banner features a blue header with the 'CLIMATE CHANGE LIVE' logo and a globe. Below the logo is the text 'A DISTANCE LEARNING ADVENTURE'. To the right, a yellow banner reads 'GRANTS Kick start an action project at your school'. Below this is a photo of a group of students working by a pond. At the bottom, a blue navigation bar contains links: REGISTRATION, WEBCASTS, FOR TEACHERS, FOR STUDENTS, MULTIMEDIA, PARTNERS, and TRANSLATION. A 'SHARE' button with social media icons is also present.

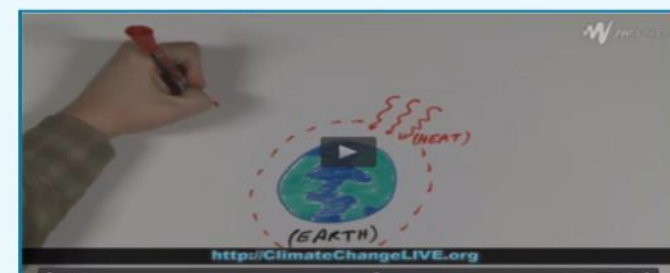


LET'S TALK ABOUT CLIMATE CHANGE

Twitter

@FSNatureLIVE
Save the date on Thursday, Sept. 28 for a FREE, LIVE program from Colorado that explores fresh water & watersheds.
<https://t.co/moSSlRwlr5>

The banner features a photo of a smiling woman holding a smartphone. To the right, a Twitter post from @FSNatureLIVE is shown, announcing a free live program on September 28 about fresh water and watersheds in Colorado. The URL https://t.co/moSSlRwlr5 is provided.



<https://climatechangelive.org/>

有關氣候變化問題教學資源



氣候變化教材套 Educational Package on Climate Change

香港天文台編輯

Compiled by the Hong Kong Observatory

中文

English

http://www.hko.gov.hk/climate_change/ed_package/start.htm

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有關氣候變化問題教學資源

結 伴 減 碳

地 球 保 源 教 材 套



<http://www.gaia.cuhk.edu.hk/edukit/pdf/edukitforteacher.pdf>


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有關氣候變化問題教學資源

登入 登記 | 字型大小 | Eng 簡 其他語言 ▾

GovHK 香港政府一站通

本港居民 商務及貿易 非本港居民 社會群體 

主頁 > 本港居民 > 環境 > 全球環境 > 氣候變化

空氣質素

商業與環保

能源效益及節約

環境影響評估與規劃

全球環境

自然保育

噪音

氣候變化

分享：  

氣候變化是當前全球面對的挑戰，影響著每一個人的生活。本文將介紹甚麼是氣候變化、氣候變化對本港的影響、政府的相應對策，以及你可以如何協助解決氣候危機。

甚麼是氣候變化

氣候變化，是指自然氣候變化之外，人類活動引致大氣組成改變所導致的氣候變化。主要是因為使用化石燃料，人類活動令全球溫室氣體的濃度上升。溫室氣體就像大氣中的一層覆蓋層，阻止熱力離開地球，使地球保持溫暖。但人為引致的溫室氣體增加使溫室效應加劇，氣候系統變暖，此現象稱為全球暖化。全球暖化引起了許多問題，如熱浪變得更頻密、海平面上升、農業生產量下降、水資源枯竭、疾病傳播，以及生態和環境不平衡等。

1901-2012年期間表面溫度的改變
Observed change in surface temperature 1901-2012



<https://www.gov.hk/tc/residents/environment/global/climate.htm>

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有關氣候變化問題教學資源

2017年10月23日 (一) | 22.4°C 60% (00:20)

個人版 | App 版 | 流動版 | 简体 | ENG | 搜索 | 設定



香港特別行政區政府
香港天文台
HONG KONG OBSERVATORY
科學創新 服務用心



主頁

最新消息

關於我們

天文台動態

服務概覽

瀏覽數字

新聞公報

天氣隨筆

今日天氣警告

本地天氣觀測

天氣預報

天氣監測圖像

電腦預報產品

我的天文台

地圖天氣

熱帶氣旋

航空氣象服務

海洋氣象服務

運動天氣資訊

社群天氣資訊

天氣

氣候

社群

學習

消息

電子服務

關注我們

氣候變化

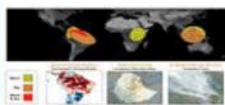


香港氣候行動藍圖2030+



全球氣候一直受到太陽活動、地球軌道改變、火山活動等因素的影響，但自工業革命以來，大氣中溫室氣體濃度不斷增加，對氣候的影響完全蓋過了這些自然因素。人類活動所引致的氣候變化，已經成為人類現時重大的挑戰。

你知唔知 ...



美國太空總署查明地球近期二氧化碳記錄飆升的成因。

昔日資料

氣候資料服務

全球氣候變化

香港氣候變化

氣候變化的原因

氣候推算

教育資源

1941

2004

氣候系統變暖是無庸置疑

化趨勢。全球暖化
了極端天氣事件發

http://www.hko.gov.hk/climate_change/climate_change_c.htm

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有關氣候變化問題教學資源



GLOBAL CLIMATE CHANGE
Vital Signs of the Planet

FACTS

ARTICLES

SOLUTIONS

EXPLORE

RESOURCES

NASA SCIENCE



NEWS

September 2017: Fourth warmest on record

September 2017 was the fourth warmest September in 137 years of modern record-keeping, according to a monthly analysis of global temperatures by NASA scientists.

FULL STORY

<https://climate.nasa.gov/>

CARBON DIOXIDE

↑ 406.94 parts per million

GLOBAL TEMPERATURE

↑ 1.7 °F since 1880

ARCTIC ICE MINIMUM

↓ 13.2 percent per decade

LAND ICE

↓ 286.0 Gigatonnes per year

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探究式學習教學

- 由學生為主導的學習模式，老師扮演輔導的角色協助學生建構知識。在學習過程中，學生需要不斷發問及透過蒐集及分析資料去解答問題。
- 於課堂教學中進行探究，讓學生在教師的有效指導下和相互交流的自發反思下，按照教材分析和教師的指示或提問、或所提供的訊息，通過主體參與學習，自主探討解決問題的方式，有效理解學習內容，從而達到自主學習的目的。

探究式學習教學

- 「教師引導、學生主體」為基本精神，避免學生在好奇心的驅使下從事盲目和低效能的自發探究活動。
- 學生在探究過程中需要鑑定問題、搜集資料及解決問題，以代替教師給予「正確」答案的做法。
- 探究學習並不強調尋找「標準」或「正確」答案，而是為問題尋找適切的解決辦法，因為有些時候並沒有「標準」或「正確」的答案。



探究學習的基本特點

- 學生主動參與，教師從旁協助
- 學生通過探究活動自行發現，從中建構出新知識
- 重視協作學習
- 注重證據為問題解決的基礎
- 重視學習的評估



探究式教學類型

一. 指導式探究

- 主要目的在於教導學生學習，也就是協助學生「**學習如何學習**」
- 教師可在學生進行探究之前或在探究之中給予**指示和引導**，再讓學生實際進行探究並**自行發現答案**之所在，兼顧教師和學生的角色
- 在指導式探究教學中，教師在提出問題、促進反應、組織材料和情境上皆有相當重要的任務，教師可說是整個學習的**領導者和組織者**



探究式教學類型

一. 指導式探究特徵

- 教師的角色是班級活動的領導者(提出問題、促進反應、組織材料和情境)
- 學生要對各種事件、資料或材料作反應，並根據觀察建立某種有意義的關係。
- 學生思考的過程是由特殊的觀察到推論，教師要鼓勵每位學生相互溝通。

探究式教學類型

二. 非指導式探究

- 美國科學教育學者卡林及桑德(Carin & Sund, 1985) 認為學生要從事非指導式的探究學習時，必須**自己能夠發掘問題**，提出其所欲探討的問題。
- **學生是主動的**、積極的，教師只是居於協助的地位，不給予任何的指導，在整個探究過程中**完全由學生自行決定所需蒐集的資料**，並加以整理，最後自行獲得答案，解決問題。
- 皮亞傑(J. Piaget)認為並不是每一個小學階段的兒童皆有完全自由探究和發現的能力，所以在進行非指導式探究時，要注意的是**並非所有的學生皆適合**使用非指導式探究的教學法

探究式教學類型

二. 非指導式探究特徵

- 教師在整個過程中只控制材料和提出一些簡單的問題。
- 學生從觀察探究中獲得有意義的關係或型態。
- 教師鼓勵學生提供自己的推論與其他人分享。

探究式教學類型比較

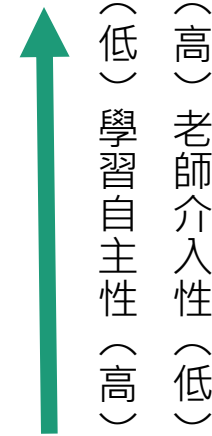
	指導式探究教學	非指導式探究教學
教學重點	教師在學生進行探究式之前或在探究式之中給予 指示和引導 ，再讓學生實際進行探究並自行發現答案所在	探究式過程中 完全由學生自行去決定 所需蒐集的資料，並加以整理，最後自行獲得答案解決問題
教師角色	教師 是班級活動的 領導者 ，教學活動中鼓勵每位學生相互溝通	教師 是居於 協助 的地位，不給予任何指導
學生角色	對各種事件、資料或材料作 反應 ，並根據觀察去建立某種有意義的關係。	積極主動 的去決定蒐集資料、整理資料和獲得答案解決問題。



探究式學習教學類型

探究式學習四種類型 (引自 Bell, Smetana, & Binns, 2005, p.32)

- 驗證性的探究 (Confirmation inquiry)
- 結構化的探究 (Structured inquiry)
- 引導性的探究 (Guided inquiry)
- 開放性的探究 (Open inquiry)



- 引導式與開放式探究的差異在於教師是否主動提供學生可研究的問題讓學生從中選取感興趣的部份
- 結構化探究型態的差異在於教師是否主動提供研究問題的解決方式
- 階層愈低代表學生學習的自主性愈低，而教師介入的程度愈高；階層愈高代表教師介入程度低，且學生愈能夠自行完成整個探究的學習工作

探究式學習教學類型

Figure 1.

The four levels of inquiry and the information given to the student in each one.

Inquiry Level	Question	Procedure	Solution
1—Confirmation Inquiry <i>Students confirm a principle through an activity when the results are known in advance.</i>	✓	✓	✓
2—Structured Inquiry <i>Students investigate a teacher-presented question through a prescribed procedure.</i>	✓	✓	
3—Guided Inquiry <i>Students investigate a teacher-presented question using student designed/selected procedures.</i>	✓		
4—Open Inquiry <i>Students investigate questions that are student formulated through student designed/selected procedures.</i>			

探究式學習教學類型

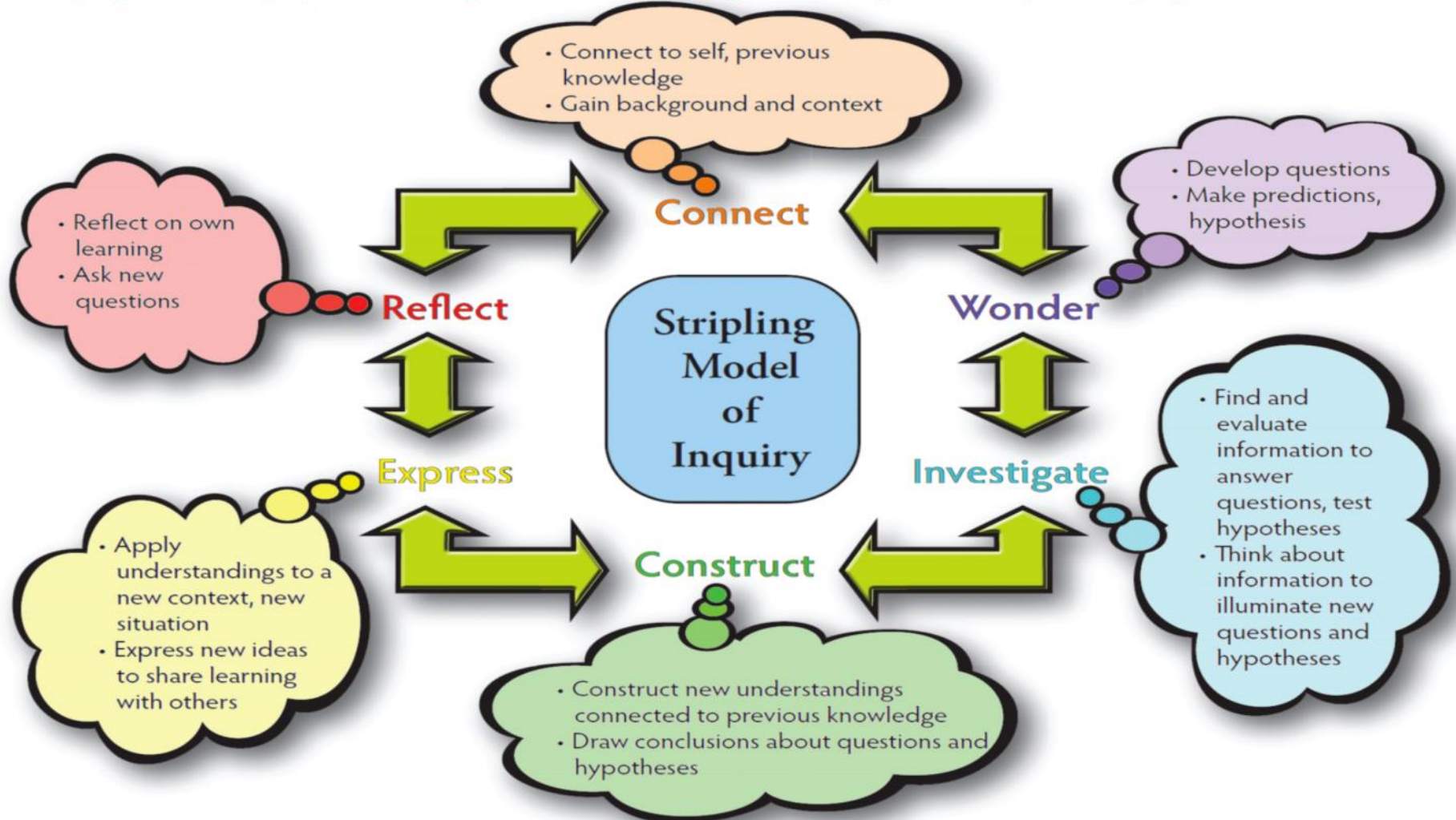
表1、探究活動的四個層次（引自 Bell et al., 2005, p.32）

探究活動的四個層次	提供探究 問題	提供解決 方法	提供正確 答案
階層 0 驗證性的探究（Confirmation inquiry）	v	v	v
階層 1 結構化的探究（Structured inquiry）	v	v	
階層 2 引導性的探究（Guided inquiry）	v		
階層 3 開放性的探究（Open inquiry）			

探究式學習教學 常見模式及實施

Stripling Model of Inquiry Connect, wonder, investigate, express and reflect

The Stripling Model of Inquiry is used throughout the Library of Congress' Teaching with Primary Sources program.



Stripling Model of Inquiry

1. Wonder

- Develop **questions**
- Make predictions, hypothesis

2. Investigate

- Find & evaluate **information** to answer questions, test hypotheses
- Think about information to **illuminate new questions**

3. Construct

- Construct **new understanding** connected to previous knowledge
- **Draw conclusions** about questions and hypotheses

4. Express

- **Apply** understanding to new content, New situations
- Express new ideas **to share learning with others**

5. Reflect

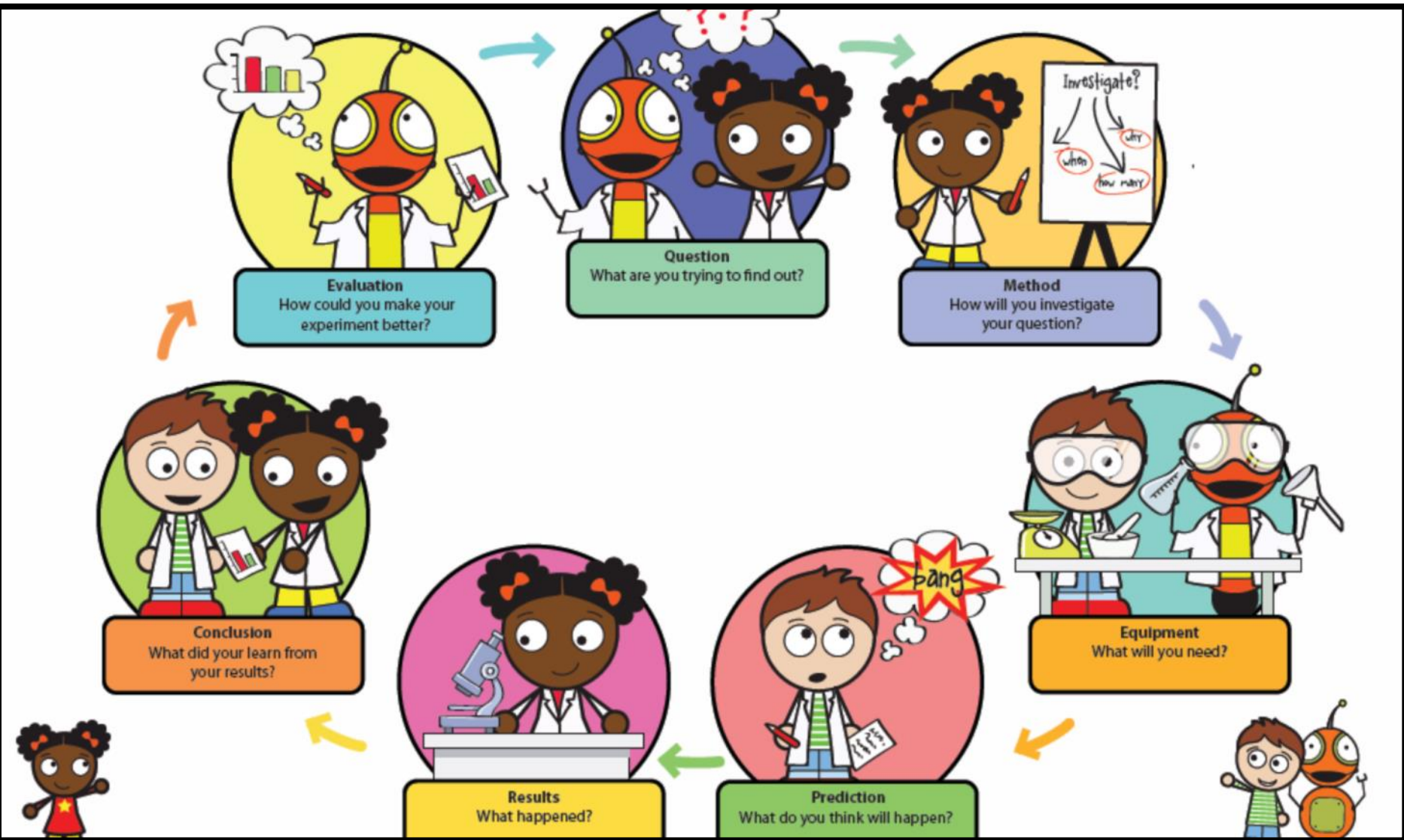
- Reflect on own learning
- **Ask new questions**

6. Connect

- Connect to self, previous knowledge
- **Gain background and context**
- Observe, experience

探究式學習教學 常見模式及實施

Scientific enquiry 科學探究



探究式學習教學 常見模式及實施

Teaching Inquiry with Primary Sources



TEACHING with PRIMARY SOURCES

- [TPS Program Home](#)
- [About the Program](#)
- [TPS Regional Program](#)
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- [Contact Us](#)

Related Resources at the Library

- [Teacher's Page](#)
- [American Memory](#)
- [America's Library](#)
- [American Folklife Center](#)
- [Prints and Photographs](#)
- [Veterans' History Project](#)
- [Poetry Page](#)
- [Wise Guide](#)

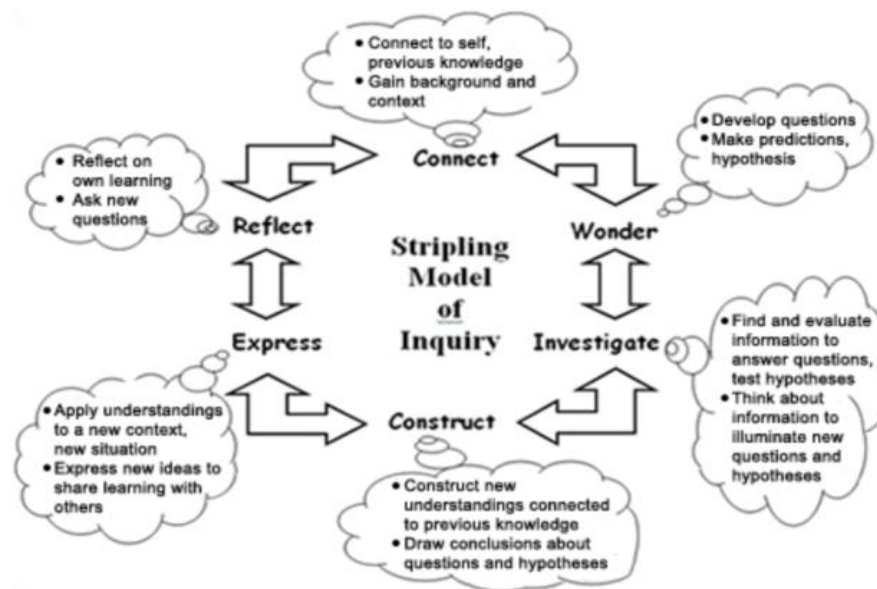
[About TPS Quarterly](#) | [Quarterly Main](#) | [Feature Article](#) | [Research and Current Thinking](#) | [Teacher Spotlight](#) | [Learning Activity \(Elementary\)](#) | [Learning Activity \(Secondary\)](#) | [TPS Quarterly Archive](#)

Teaching Inquiry with Primary Sources

Why is inquiry important for student learning?

Inquiry is a process of active learning that is driven by questioning and critical thinking. The understandings that students develop through inquiry are deeper and longer lasting than any pre-packaged knowledge delivered by teachers to students.

Inquiry-based learning follows a process that progresses through phases, but is recursive and reflective throughout. The six phases and their thought processes are detailed in the following diagram.



Stripling Model of Inquiry

Teaching Inquiry with Primary Sources

www.loc.gov/teachers/tps/quarterly/inquiry_learning/article.html

有關氣候變化問題教學資源

討論：

如何將課程中氣候變化的**必須概念**轉化為探究式學習的**議題或活動**？

1. 甚麼是氣候變化？

What is climate change?

2. 責任及處理

What is responsible for climate change and how do we know

3. 為甚麼氣候變化急切處理？

Why does climate change matter?

4. 如何處理？

What can we do?

高中地理課程架構

地理課程及評估指引 (中四至中六) 2007 (2017年7月更新)

http://www.edb.gov.hk/attachment/tc/curriculum-development/kla/pshe/Geog_C&A_Guide_c-July_2017_clean.pdf

[註：本更新版本將逐步於2019/20在中四、於2020/21在中五、並於2021/22在中六全面推行]

高中地理課程架構

議題:

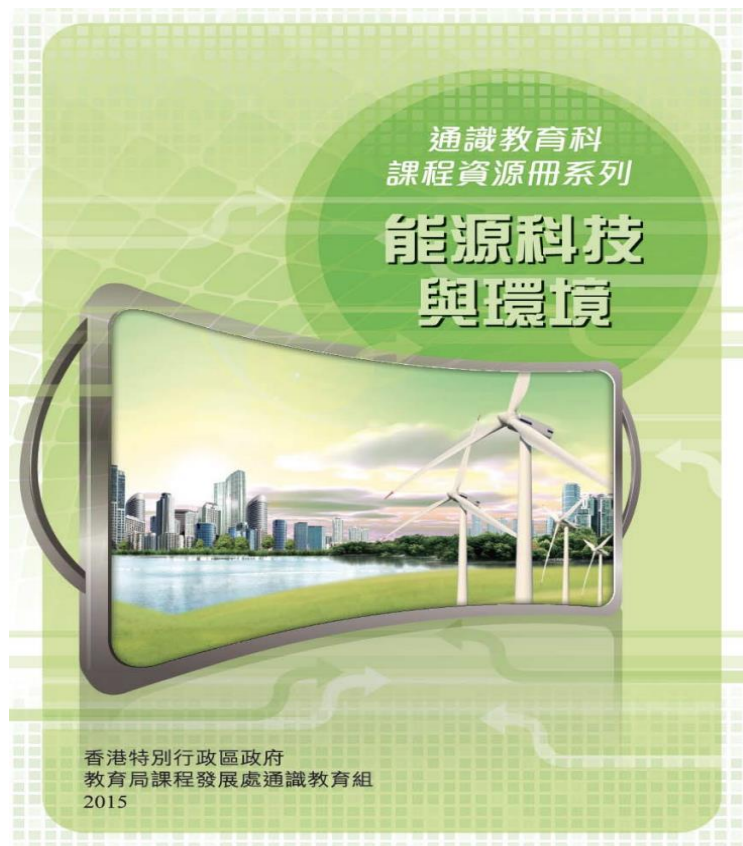
- 消失中的綠色樹冠——誰應為大規模砍伐雨林付出代價？
- 氣候變化－長期波動還是不可逆轉趨勢？

選修單元:

- 天氣與氣候

高中通識教育科課程架構

《通識教育科課程資源冊系列：能源科技與環境》



網站：

http://ls.edb.hkedcity.net/tc/about_RelatedPublications.php

高中通識教育科課程架構

《通識教育科課程資源冊系列：能源科技與環境》

- 高中通識教育科「能源科技與環境」單元學與教示例（4）
- 國際社會應對氣候變化的實踐：以全球氣候峰會為例
- 頁 139

網站：

http://ls.edb.hkedcity.net/file/about/related_publications/energy_tech_c1.pdf

有關氣候變化問題教學資源（地理）



The image shows the cover of a curriculum support material. The top half features a vibrant, abstract landscape painting with green, yellow, and blue hues. Overlaid on this is the title 'Curriculum Support Materials for Senior Secondary Geography (S4-S6) : Part 1' in English and its Chinese equivalent '高中地理課程支援教材（中四至中六）：第一部份'. Below the painting, the content is organized into two main sections: 'Introduction 序言' and 'Notes to Teachers 教師指引'. Each section has links for 'English' and '中文版'.

Curriculum Support Materials for Senior Secondary Geography (S4-S6) : Part 1
高中地理課程支援教材（中四至中六）：第一部份

Introduction 序言

English 中文版

1. [Introduction](#) 1. [序言](#)

Notes to Teachers 教師指引

English 中文版

1. [Notes to teachers](#) 1. [教師指引](#)

網站：http://cd1.edb.hkedcity.net/cd/TC/Content_4025_NSS

有關氣候變化問題教學資源（地理）

資料提供：綠色和平

➤ 氣候變化A-Z ➤ 氣候浩劫 香港有份 ➤ 氣候英雄生活實鑑 ➤ 國際氣候行動

前言

氣候變化，你了解它嗎？

我們聽過氣溫正不斷上升，夏天變長，冬天變短，大雨成災，冰川融化。社會進步令我們生活愈來愈舒適，但亦製造了很多從前想也沒有想過的自然災害。水能覆舟，就能載舟。是人類一手造成的困局，人類也必定能扭轉困局。

2009是很重要的氣候年，因為聯合國氣候會議將於今年12月在丹麥的哥本哈根舉行，討論《京都議定書》第二階段的溫室氣體減排目標。全球溫度上升能否控制在攝氏2°C以下，人類能否避過因氣候變化帶來的極端天氣、糧食短缺及物種滅絕等危機，哥本哈根會議將扮

網站：

http://www.hkedcity.net/iworld/feature/view.phtml?iworld_id=101&feature_id=1935¤t_page=1/

有關氣候變化問題教學資源（地理）

地理教與學園地

[➤ 有關本會](#)
[➤ 推介本會](#)
[➤ 成為會員](#)

專題

專題：

頁數檢索：[1](#) [2](#) [3](#) [4](#)

文：香港樂施會 編輯：小a
《無窮》季刊 設計：HeKe

編者語 氣候變化誰最受苦？ 脆弱的大地 氣候適應措施

這個年頭，關注「氣候變化」彷彿成了全球的大氣候。

每天翻開報章，總有一兩則相關的報道，「格寧蘭冰塊體積縮小」、「北海道雪祭的展品融

網站：

http://www.hkedcity.net/iworld/feature/view.phtml?iworld_id=101&category=&feature_id=1716

有關氣候變化問題教學資源（地理/通識）

全港校際氣候變化跨課程專題比賽2016-17

氣候變化已成為廿一世紀的熱門議題。為加強教育下一代應對氣候變化，教育局舉辦上述比賽，邀請所有中、小學學生就應對香港氣候變化的減緩、適應及應變措施，製作小發明品或提出創意的解決方法。

全港校際氣候變化跨課程專題比賽2016/17成績公佈**最新!**

1. 傑出地理資訊系統應用大獎

組別	學校名稱
小學	P011A 天主教聖母聖心小學
初中	J008B 九龍華仁書院
高中	S037A 宣道會陳朱素華紀念中學

2. 小學 - 最佳發明品

名次	學校名稱
冠軍	P033A 港澳信義會小學
亞軍	P005A 浸信會天虹小學
季軍	P007A 聖保羅男女中學附屬小學

3. 小學 - 最佳研究專案

網站：
http://www.edb.gov.hk/tc/curriculum-development/kla/pshe/climate_change_competition/index.html

有關氣候變化問題教學資源（通識）

熱門關鍵字

法治 全民退保 同性戀 可持續發展 人口老化 一帶一路 一地兩檢 郊野公園 垃圾徵費 光污染 房屋

+

每日專題

全球化 “ 氣候變化 ”

製作日期:24/09/2014

最新消息



通識達人
網上挑戰計劃
2017/18

|| 通識專題 ||



耐藥性
公共衛生

|| 通識影片 ||

發展棕地既喜亦悲

棕地發展 環境保護 農地 商界 房屋 土地用途 土地權益 露天貨倉 木廠



氣候變化 (Climate Change) 是指長時期的區域或全球性氣候變動。科學界相信使用化石燃料、不適當的土地利用等人類活動已做成溫室氣體濃度上升，導致全球暖化，水災、旱災、熱浪、風暴等極端氣候頻繁出現，故採取應對措施已刻不容緩，各國須推動節能減排、使用清潔燃料及發展可再生能源以舒緩問題。



應對氣候變化!?

新聞摘要
聯合國氣候峰會揭幕

聯合國氣候峰會在紐約揭幕，有120多個國家首腦或政府官員出席。聯合國秘書長潘基文於開幕致辭呼籲國際社會採取行動應對氣候變化，致力在2015年達成新的氣候協議。美國指氣候變化增加自然災害，令一些地方民眾爭奪水源而互相殘殺。中國表示將盡快提出2020年後應對氣候變化的行動目標，如降低碳排放強度等。

檢視形式:  

|| 新聞 ||

|| 相關資料 ||

網站：

<http://www.liberalstudies.hk/?date=2014-09-24>

有關氣候變化問題教學資源（通識）

科學為民

Text：王小璐
2008.10.17

Take me Home

簡介

我們今日的生活能夠過得舒適，原是百年科學發展的成果。由日常健康，到你家中的食水和食物，再數到你大廈的電梯、道路和街道上的電訊網絡，以至整個大自然環境的保育，原來我們生活很

大部分，都是政府運用科技得宜，才令我們過得更方便。「科學為民」就是要讓大家知道，香港多個政府部門如何運用各種科學知識，去讓市民的生活過得更美好。

香港天文台



城市化與氣候變化

近數十年，香港的平均氣溫屢創新高。而在炎炎夏日，我們不願意在烈日下曝曬多一秒；回到家中，我們急不及待開動空調，把溫度調至最低，坐在沙發上涼個不亦樂乎。但當我們一邊享受着空調吹送來的涼風，一邊慨嘆全球暖化所帶來的嚴重影響的同時，有否想過你和我也是導致氣候變化的元兇之一呢？

根據國際氣象組織「政府間氣候變化專門委員會」（IPCC）在2007年發表的第四份評估報告，20世紀中期以來的全球變暖現象，極有可能是由於人為的溫室

雨天增多 寒冷日子縮短

在人口密集、高樓大廈林立的香港，城市化是導致氣溫上升的原因之一。因此在推算香港未來氣溫時，我們必須考慮到城市化的影響。多個溫室氣體排放情景和不同城市化程度計算出來的平均結果顯示，在2090至2099年本港的年均氣溫，會較1980至1999年的23.1℃高出4.8℃，而每年夏季的熱夜數目則會從15晚增加至41晚；酷熱天數會由7天增加至15天，寒冷的日子更有可能會在2030至2039這十年間下降到少於一天。

網站：

<http://www.science.gov.hk/chi/liberalstudies/ls081017cr.pdf>

The Chinese University of Hong Kong



有關氣候變化問題教學資源（通識）

文匯通識專欄

教育社企

獨立專題探究支援網站 **Liberal Studies**
www.ies22.net

Home 我有意見 通識專題 關於

全球碳排系列之一：緩解氣候變化影響減碳排 責任誰屬

刊出日期：2011年6月27日（文匯報）



文匯報教育 通識專欄
緩解氣候變化影響 減碳排責任誰屬?

為了應對人為因素導致的全球氣候變化，聯合國於1994年正式成立《氣候變化綱要公約》（《公約》），定期每年召開氣候大會促進國際合作。其中最具爭議的是2009年哥本哈根會議，已發展國家與發展中國家就如何分配減排責任產生嚴重分歧。氣候是共同擁有的資產，到底如何才能建立一個公平的國際制度，同時能有效緩解氣候變化的影響，國際間至今仍未達成一致的共識。

■ 作者：陳鈺璜 教育社企



■ 全球氣候變化問題不斷擴展，發展中國家將承受氣候變化所引致近8成的影響。

資料圖片

相關概念

■ 碳排限額
(Emission Caps)

《京都議定書》規定每個締約國於承諾期內減少其人為溫室氣體排放總量至各締約國於1990年水平的5%。由於各締約國碳排水平不同，因此被允許排放上限亦有差異。

■ 共同但有區別責任原則 (the principle of "common but differentiated responsibilities")

《公約》承認所有國家在全球氣候變化問題上均有責任及義務，但應按緩急先後處理。它主要將減排責任的區別分為已發展國家及發展中國家，前者(除美國拒簽外)均須率先承擔具約束力的減排責任；而後者因仍在發展階段中，因此可自願性減排，暫不受《公約》約束。

SEARCH

POPULAR POSTS

加強控煙措施利弊如何平衡？
快餐卡路裡爆燈，多吃癡肥傷身
面談考技巧，準備要充足
湄公河旱情，天災或人禍？
義務工作：利他還是利己？
低薪蝸居無福保，蟻族逃離大都市

FEATURED VIDEO



網站：
<http://ese.org.hk/wenwei/?p=1747>

有關氣候變化問題教學資源（通識）



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香港青年協會
the hongkong federation of youth groups

[主頁](#) | [今日香港](#) | [個人成長與人際關係](#) | [現代中國](#) | [能源科技與環境](#) | [學習區](#) | [相片集](#)

能源科技與環境

探討主題：氣候變化

議題：

- 氣候變化的背景資料及現況
- 氣候變化對環境及人類的影響
- 國際社會、香港及個人如何應對氣候變化和所面對的挑戰

簡介：全球正處於應對氣候變化的關鍵時刻。極端天氣、氣溫上升、海洋暖化、冰川融化，種種現象清楚證明氣候變化正急速加劇，地球不斷升溫。氣候變化對世界各地社會經濟影響深遠，香港亦不能例外。本節目邀請天文台的總學術主任、環境專家和環境教育工作者到場與學生探討氣候變化的議題。



1/5 《通識直播室》探討主題：氣候變化 第一節

直播日期：27/2/2017(星期一)

時間：下午3時-4時

地點：M21媒體空間

嘉賓：

岑富祥先生
天文台總學術主任（氣候預報服務及氣候變化研究）

余遠騁博士
世界綠色組織行政總裁

胡卓豪先生
環境教育工作者、環境科學畢業生，先後兩闖南極及兩闖北極，現任「野外動向」項目主任（環境教育及研究）

直播渠道：M21.hk

教學設計及論壇學習資料：

通識直播室論壇記錄表：

網站：

<https://m21.hk/lonline/energy>

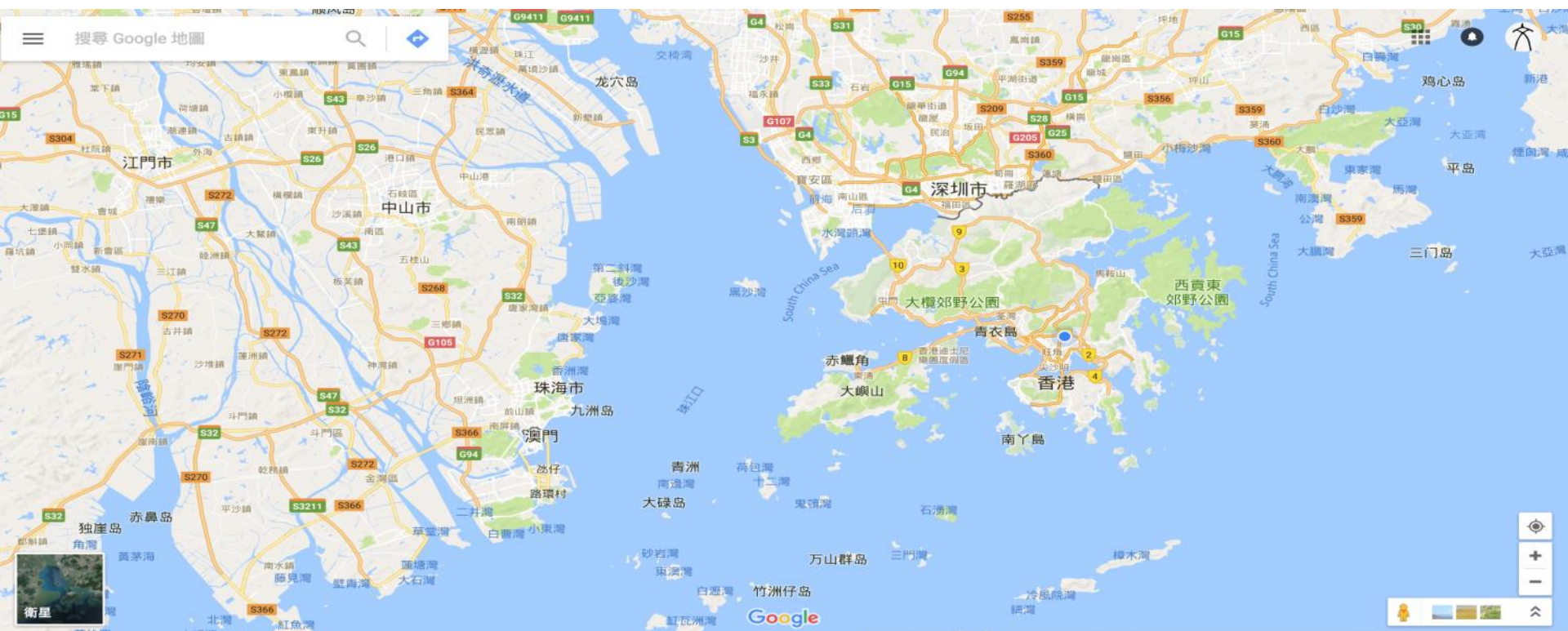
2. 介紹 GIS 及 資訊科技相關資源

(例如：Esri Story Maps、Esri ArcGIS Online、Google Maps、Google Earth、EduVenture等)



介紹 GIS 及資訊科技相關資源

Google Maps



<http://maps.google.com/>

Centre for Learning Sciences and Technologies (CLST)
The Chinese University of Hong Kong



介紹 GIS 及資訊科技相關資源

Google Earth



<https://www.google.com/earth/>

Centre for Learning Sciences and Technologies (CLST)
The Chinese University of Hong Kong



介紹 GIS 及資訊科技相關資源

Google Earth



The screenshot shows the Google Earth website interface. At the top left is the Google Earth logo. At the top right is a language dropdown menu set to "English". Below the logo is the heading "Climate change in Google Earth". A paragraph of text describes exploring climate change impacts and solutions, mentioning the United Nation's Climate Conference (COP15) in Copenhagen. Below this is a vertical list of four video thumbnails: "Confronting Climate Change with Al Gore", "Projecting Future Climate Change with Steve Schneider", "Speaking for the Forests with Dr. Jane Goodall", and "Climate Action in California with Arnold Schwarzenegger". A fifth thumbnail, "Protecting the", is partially visible. To the right of these thumbnails is a large black rectangular area. At the bottom left, a green banner contains the URL <https://archive.google.com/landing/cop15/>. At the bottom right, there is a section titled "RAISE YOUR VOICE CHANGE CLIMATE CHANGE" with a graphic of a bar chart and a microphone.

Google 地球

Language: English

Climate change in Google Earth

Explore the potential impacts of climate change on our planet Earth and learn about solutions for adaptation and mitigation, in the context of the [United Nation's Climate Conference \(COP15\)](#) in Copenhagen. With [Google Earth](#) you can view climate change scenarios, interact with narrated tours, investigate deforestation, and even dive into the depths of the oceans.

- Confronting Climate Change**
with Al Gore
[View tour in 3D](#)
- Projecting Future Climate Change**
with Steve Schneider
- Speaking for the Forests**
with Dr. Jane Goodall
- Climate Action in California**
with Arnold Schwarzenegger
- Protecting the**

<https://archive.google.com/landing/cop15/>

Do you have a pressing question about climate change? Ask it now on the [YouTube COP15 channel](#) and be part of the CNN/YouTube debate.

RAISE YOUR VOICE
CHANGE CLIMATE CHANGE

介紹 GIS 及 相關IT資源

CUHK EduVenture System



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CLST 學習科學
與科技中心
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EduVenture® Composer

由於網絡技術問題，近日連接到EduVenture伺服器曾出現斷線或無法編輯等問題，我們已盡力及已完成收復工作。EduVenture系統已正常運作。但伺服器早前的問題可能導致2016年11月至12月其間的題目選項出現不完整，而需要重新輸入選項。主要受影響題型為MC裡的選，表格及概念圖的內容；（*題目本身不受影響）。在未來會致力更新系統，令服務更穩定可靠；這次為各位帶來不便，我們十分抱歉。若有任何疑問或需要技術支援，請電郵至clst@fed.cuhk.edu.hk

EduVenture®戶外教材設計比賽 得獎作品

各得獎作品現已於 EduVenture® X應用內開放供所有用戶下載。

<http://ev-cuhk.net/>

Centre for Learning Sciences and Technologies (CLST)
The Chinese University of Hong Kong

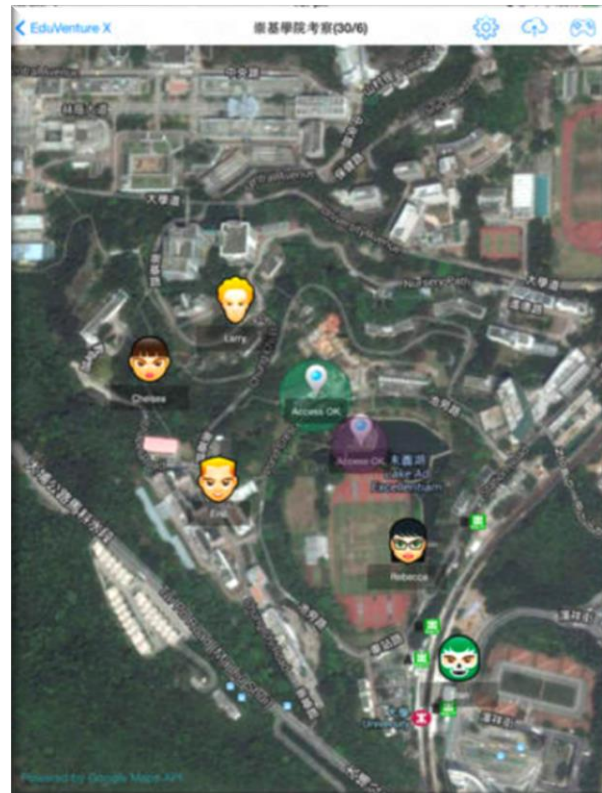


CUHK EduVenture System

The Centre for Learning Sciences and Technologies (CLST), The Chinese University of Hong Kong (CUHK) launched the **EduVenture®** learning system, which has been well received by students and teachers. CLST has recently developed **EduVenture® VR (Virtual Reality)**, a sub-system of EduVenture®.

[忘記密碼](#)[首頁](#)[開發團隊](#)[系統學與教 ▾](#)[EduVenture 網誌](#)[聯絡資料](#)

CUHK EduVenture System



CUHK EduVenture System

EduVenture® Composer



Teacher

EduVenture® eXplorer



下載 iPad 版

下載 iPhone 版

Student

EduVenture® Retriever



需要登入才能使用這功能

**Student
+
Teacher**

CUHK EduVenture System

iPad



iPhone



Centre for Learning Sciences and Technologies (CLST)
The Chinese University of Hong Kong



CUHK EduVenture System

No SIM 3:08 pm EduVenture X 100%

Materials in this device

All Materials(Internet)

From everyone

From my school

Created date

Updated date

Views

All KLA

All Subject

Cross KLA

Chinese Language

English Language



崇基學院考察(30/6)

EduVenture 共享社群

Eric Luk

Views:42



香港的圍村文化

EduVenture 共享社群

Eric Luk

Views:14



香港百年古蹟探索之旅

EduVenture 共享社群

Jack Ng

Views:86



台南井仔腳瓦盤鹽田

EduVenture 共享社群

Jack Ng

Views:42



台南七股鹽田

EduVenture 共享社群

Jack Ng

Views:47



粉嶺一日遊

屯門天主教中學

TMCSS Teac...

Views:6



南生圍的資訊設計(I...

金巴崙長老會耀道中學

Views:10



藍地 - 鄉村遇上城市

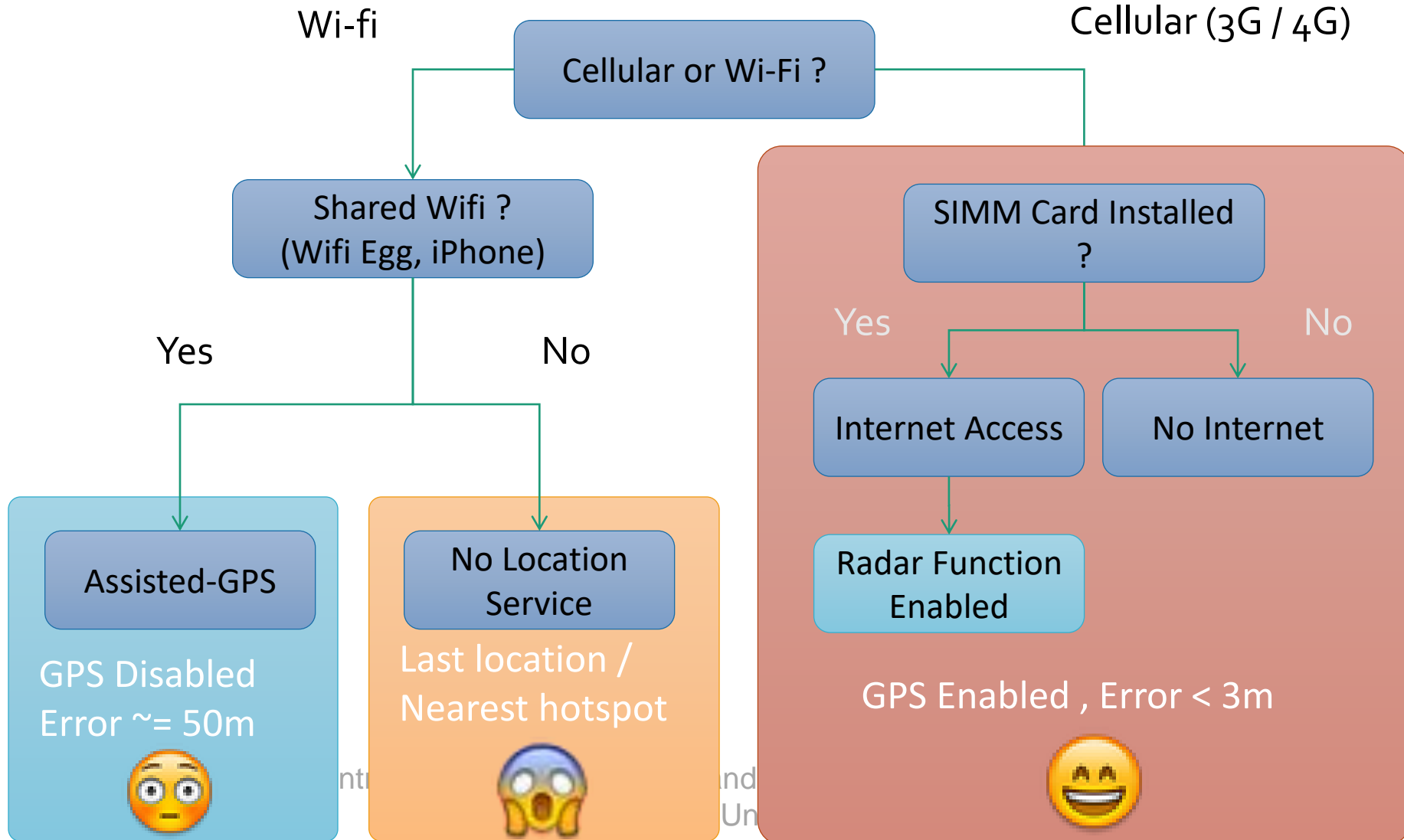
屯門天主教中學

TMCSS Teac...

Views:77

CUHK EduVenture System

Wi-fi Cellular (3G / 4G)



CUHK EduVenture System

Composer

- Create locales
- Define maps
- Create Hotspot
- Create Questions
- Save and view on iOS
- Account management

EduVenture® Composer



Teacher

CUHK EduVenture System

The Portal: <http://ev-cuhk.net>

CUHK 香港中文大學

CAITE 資訊科技教育促進中心

EduVenture®

電郵 密碼 登入

[忘記密碼](#)

[首頁](#) [開發團隊](#) [系統學與教](#) [聯絡資料](#)

EduVenture® Composer

需要登入才能使用這功能

EduVenture® eXplorer

[下載 iPad 版](#) [下載 iPhone 版](#)

EduVenture® Retriever

需要登入才能使用這功能

EduVenture® Composer 是創建戶外學習教材的平台，操作

EduVenture® eXplorer 是一款在iPad或iPhone上運行的應用程式 (App)，在沒有連接互聯網時仍可使用。學生使用此

EduVenture® Retriever 是檢視及管理學生戶外學習成果的

CUHK EduVenture System

Create a New Map

1. The Name
2. A good picture to represent the region
3. KLA + Subject
4. Ready to publish or not
5. Private / Public

The screenshot shows the 'Create New Map' (創建新考察) form in the CUHK EduVenture System. The form is divided into several sections:

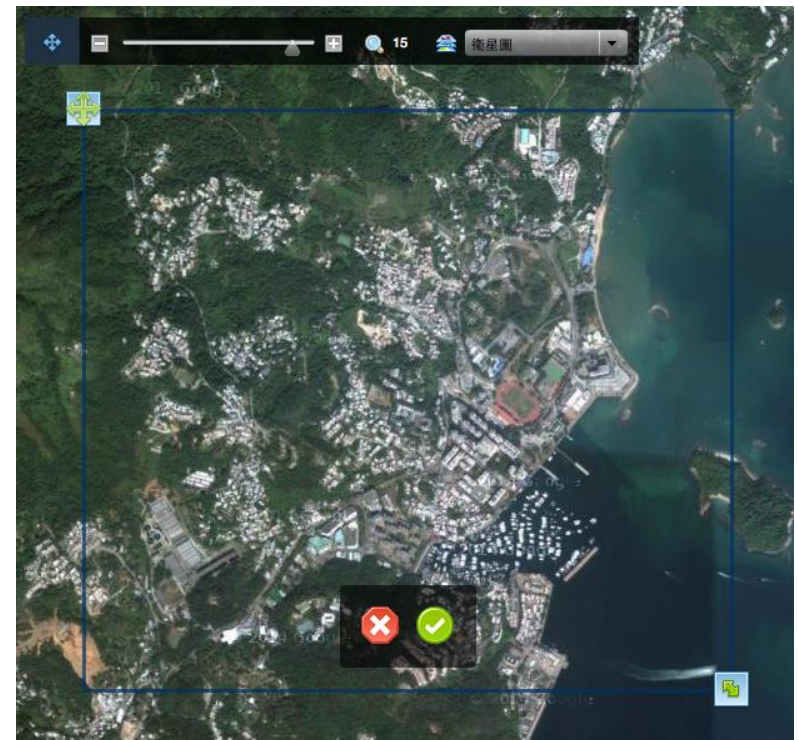
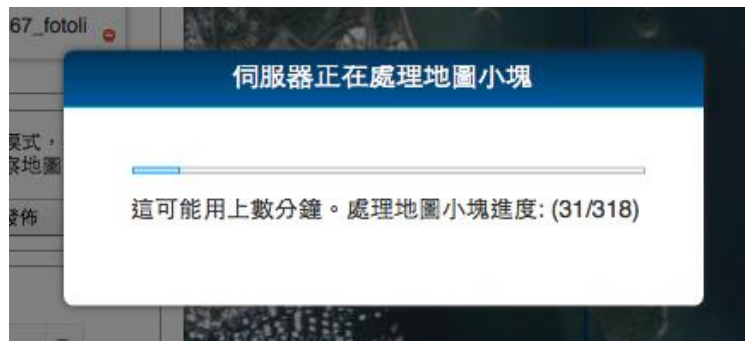
- 考察名稱 (Map Name):** A text input field containing '西貢話當年'.
- 考察描述 (Map Description):** A large text area for describing the map.
- 考察用語言 (Map Language):** A dropdown menu set to '繁體中文' (Traditional Chinese).
- 是否共享 (Is it shared?):** A dropdown menu set to '限本校使用' (Limited to school use).
- 代表顏色 (Representative Color):** A color selection button showing a blue square.
- 考察封面圖片(必須上載) (Map Cover Image (must upload)):** A section for uploading a cover image. It includes a button '上傳本機檔案' (Upload local file) and a note '圖片: 未有檔案' (Image: No file).
- 學習領域(KLA) (Learning Area (KLA)):** A dropdown menu set to '請選擇' (Please select).
- 學科 (Subject):** A dropdown menu.
- 發布模式 (Publishing Mode):** A section with a lightbulb icon and text '目前為發佈模式，其他人能看見本考察地圖' (Currently in publishing mode, others can see this map). It includes a button '轉為不發佈' (Switch to not publish).

At the bottom of the form, there are two large buttons: a red 'X' button for cancellation and a green checkmark button for confirmation.

CUHK EduVenture System

Define the Region

1. Do it within zoom level 15-16
2. Include **MORE** not LESS
3. Wait for 1-2 minutes



CUHK EduVenture System

Create and Put down a Hotspot



CUHK EduVenture System

Hotspot Settings

1. A proper name
2. Radius (A tree – Football field)
3. Larger instead of smaller
4. Give it a color

The screenshot shows the '編輯熱點' (Edit Hotspot) interface. It includes a title bar, a name field with '新熱點' (New Hotspot), a location selection section with '已定好位置' (Location already set) and map icons, a color selection section with a green color swatch, a radius slider, a hotspot category dropdown set to '正常顯示' (Normal display), and a content section with a plus icon and a message: '未有任何熱點內容，請按「加」號創建新的內容' (No hotspot content, please click the '+' icon to create new content). A green checkmark icon is at the bottom.

CUHK EduVenture System

Hotspot Component

1. 12 Types of Component
2. Unlimited
3. Try to keep them < 15
4. Combinations are possible



CUHK EduVenture System

Simple Description(Text + One Picture)

編輯內容



圖文描述

內容名稱

分類

難度 ★ ★ ★ ★ ★

描述圖片



圖片: klc02.jpg

文字描述(可用HTML語法)

Sai Kung Town (Chinese: 西貢市) or simply Sai Kung (Chinese: 西貢) is a town on Sai Kung Peninsula, facing the Sai Kung Hoi (Inner Port Shelter).

CUHK EduVenture System

Voice Over

編輯內容

**聲音導航**
內容名稱

分類
難度 

聲音描述

選擇加入聲音方式
 
聲音: 未有檔案

文字描述(可用HTML語法)



CUHK EduVenture System

Concept Map



Cer



CUHK EduVenture System

Photo taking

編輯內容

 拍照題

內容名稱

分類

難度     

拍攝題描述

Please take a photo of the temple





CUHK EduVenture System

School LOCALE Management Explained

	LOCALE NOT Published	LOCALE Published	LOCALE NOT Shared (Private) + Published	LOCALE Shared (Public) + Published
Composer (Teacher Account of the Same School)	Yes	Yes	Yes	Yes
iPad of my school (with school key entered)	No	Yes	Yes	Yes
iPad of other schools	No	depends on share setting	No	Yes

介紹 GIS 及資訊科技相關資源

ArcGIS (indoor)



About ArcGIS

Overview

What's New

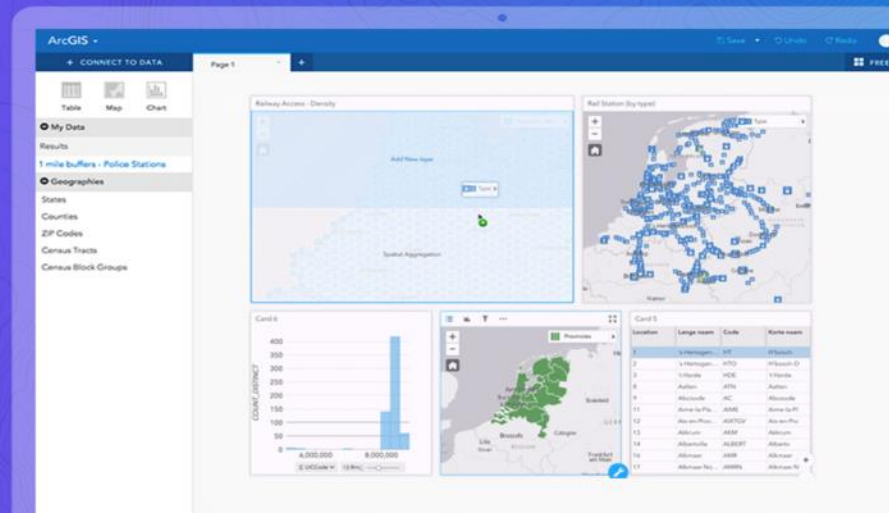
Trial

Work Smarter With ArcGIS

The Mapping & Analytics Platform

ArcGIS provides contextual tools for mapping and spatial reasoning so you can explore data and share location-based insights.

ArcGIS creates deeper understanding, allowing you to quickly see where things are happening and how information is connected.



<http://www.esri.com/arcgis/about-arcgis>

介紹 GIS 及資訊科技相關資源

ArcGIS (indoor)

- Map overlay
- Geostatistics, demonstration examples:
 - traffic patterns in an urban environment
 - weather patterns over the Pacific Ocean
 - finding Pattern for Investigation
- Adding the dimension of time
- Discussion on how to use Geostatistics and Map overlay to construct IBL questions for students

TASK 1: Map Overlay

首頁 圖庫 繪圖 場景 群組



登入

登入到 Map in Learning (MiL)
Program by Esri China (HK)

esri

使用者名稱

密碼

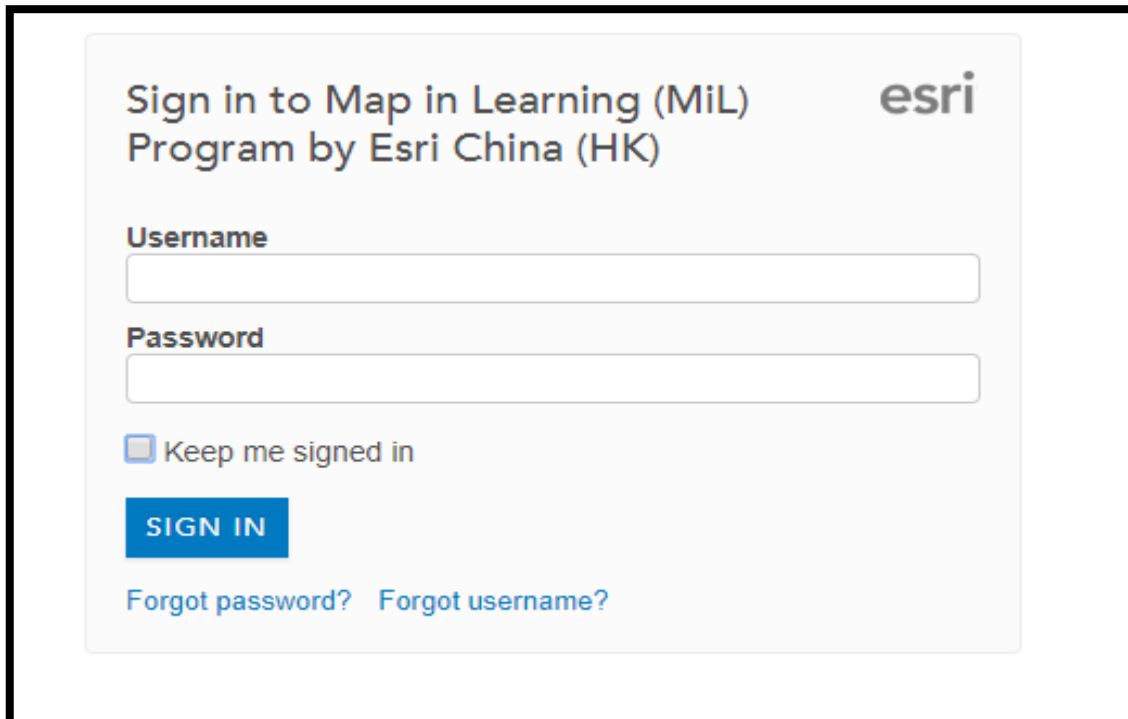
☐ 保留我的登入狀態

登入

[忘記密碼?](#) [忘記使用者名稱?](#)

Step 1: Login to ArcGIS Online

- Go to esrihkml.maps.arcgis.com
- Enter Username and Password
- Click **SIGN IN**



Sign in to Map in Learning (MiL)
Program by Esri China (HK)

esri

Username

Password

☐ Keep me signed in

SIGN IN

[Forgot password?](#) [Forgot username?](#)



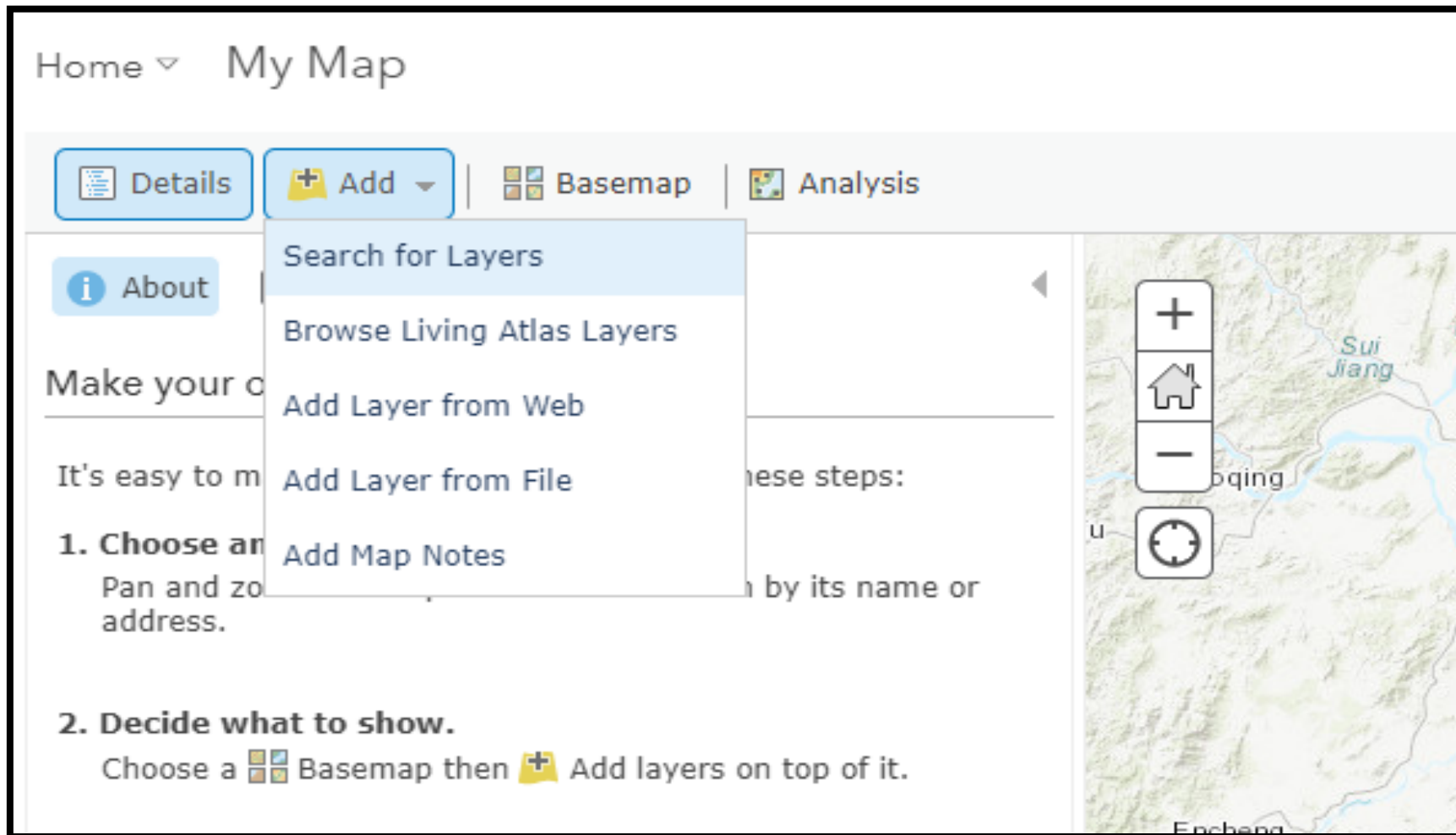
Step 2: Launch Map Viewer

- Click Map on the top banner



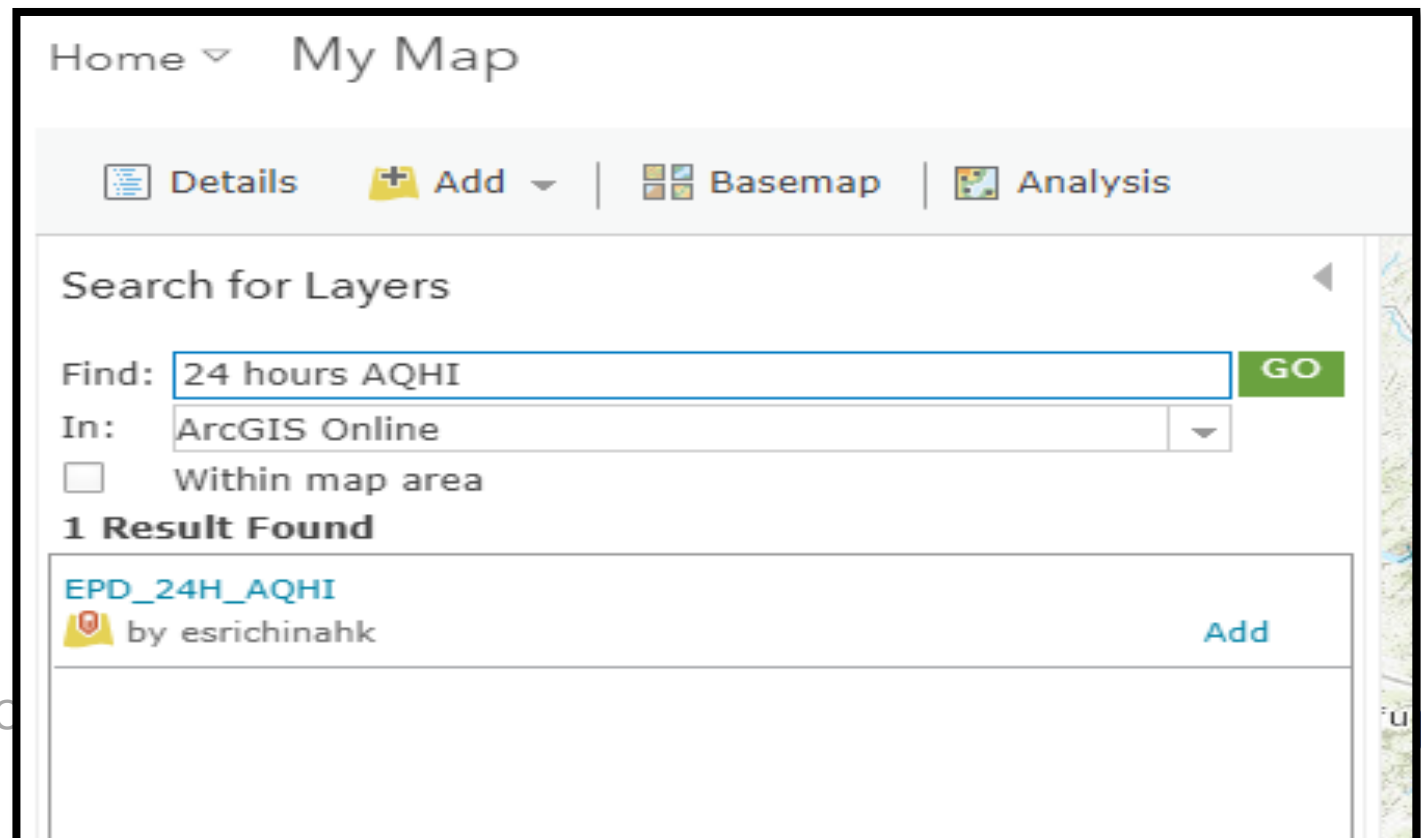
Step 3: Search for Data

- Click Add -> Search for Layers



Step 3: Search for Data

- Type in following keywords
 - 24 hours AQHI
- Select ArcGIS Online in second dropdown
- Click Go
- Click Add



The screenshot shows the ArcGIS Online search interface. At the top, there are links for 'Home' and 'My Map'. Below these are tabs for 'Details', 'Add', 'Basemap', and 'Analysis'. The 'Search for Layers' section is active, featuring a search bar with the text '24 hours AQHI' and a green 'GO' button. Below the search bar, the 'In:' dropdown is set to 'ArcGIS Online'. There is an unchecked checkbox for 'Within map area'. The results section shows '1 Result Found' with a single entry: 'EPD_24H_AQHI' by 'esrichinahk', accompanied by a yellow location pin icon and an 'Add' button.

Home ▾ My Map

Details + Add ▾ | Basemap | Analysis

Search for Layers

Find: 24 hours AQHI GO

In: ArcGIS Online ▾

☐ Within map area

1 Result Found

EPD_24H_AQHI
by esrichinahk Add

Step 3: Search for Data

- Repeat previous steps with following keyword
 - **Hong Kong 18 Districts**
- Select the first item
- Click **Done Adding Layers** to complete



Step 4: Save the map

- Click Save on the upper of map




TASK 2: Get Started with Survey123 for ArcGIS Guideline

Survey123 for ArcGIS ▾ Help

Sign In

Survey123 for ArcGIS

Smarter Forms, Smarter Field Work



Get Started with Survey123 for ArcGIS Guideline

Task :

微氣候：環境與溫度的關係 with Survey123 for ArcGIS

Objective

- To better understand 環境與溫度的關係
- Collect essential information in the field with Survey123 for ArcGIS
- Basic **data analysis** with your data

微氣候：環境與溫度的關係 with Survey123 for ArcGIS

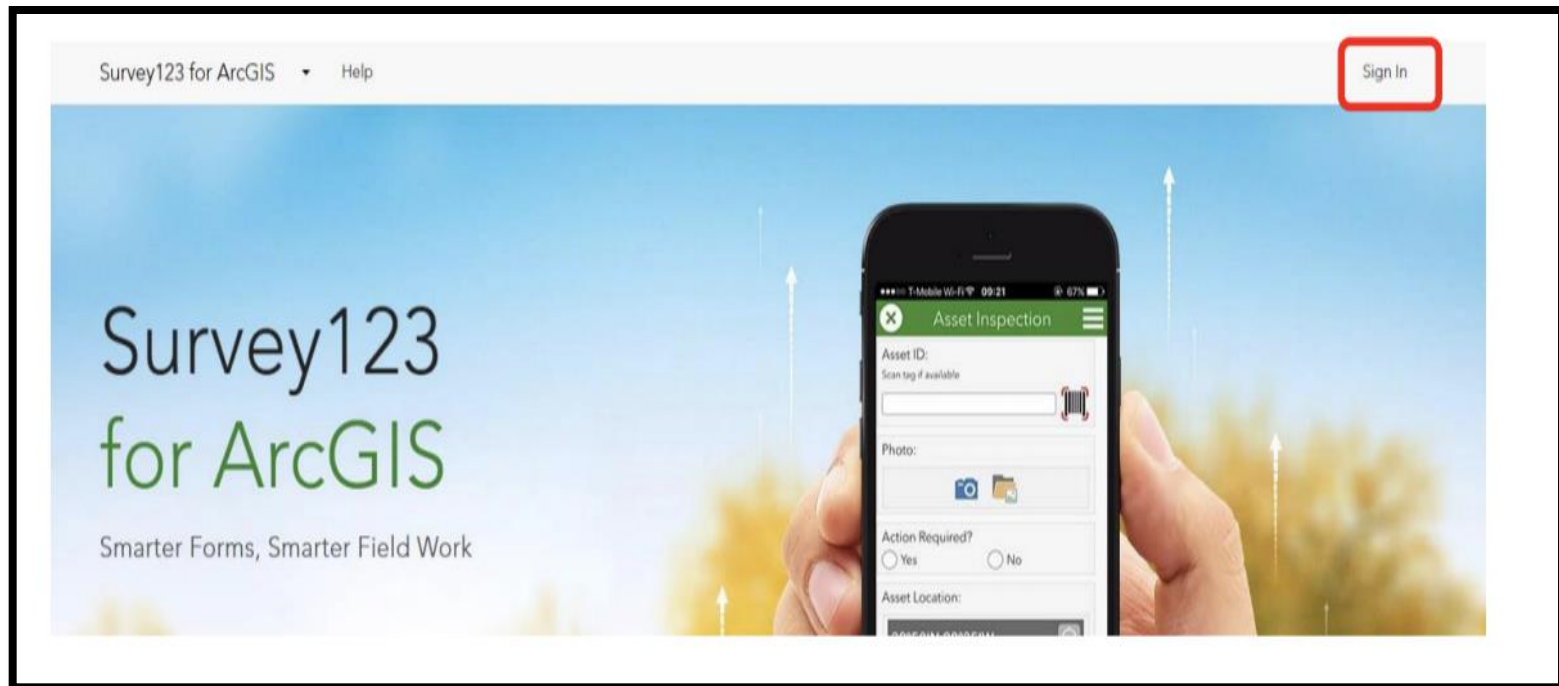


- <https://survey123.arcgis.com/share/2efb5017b1344586b30b9d925181202e>

Get Started with Survey123 for ArcGIS Guideline

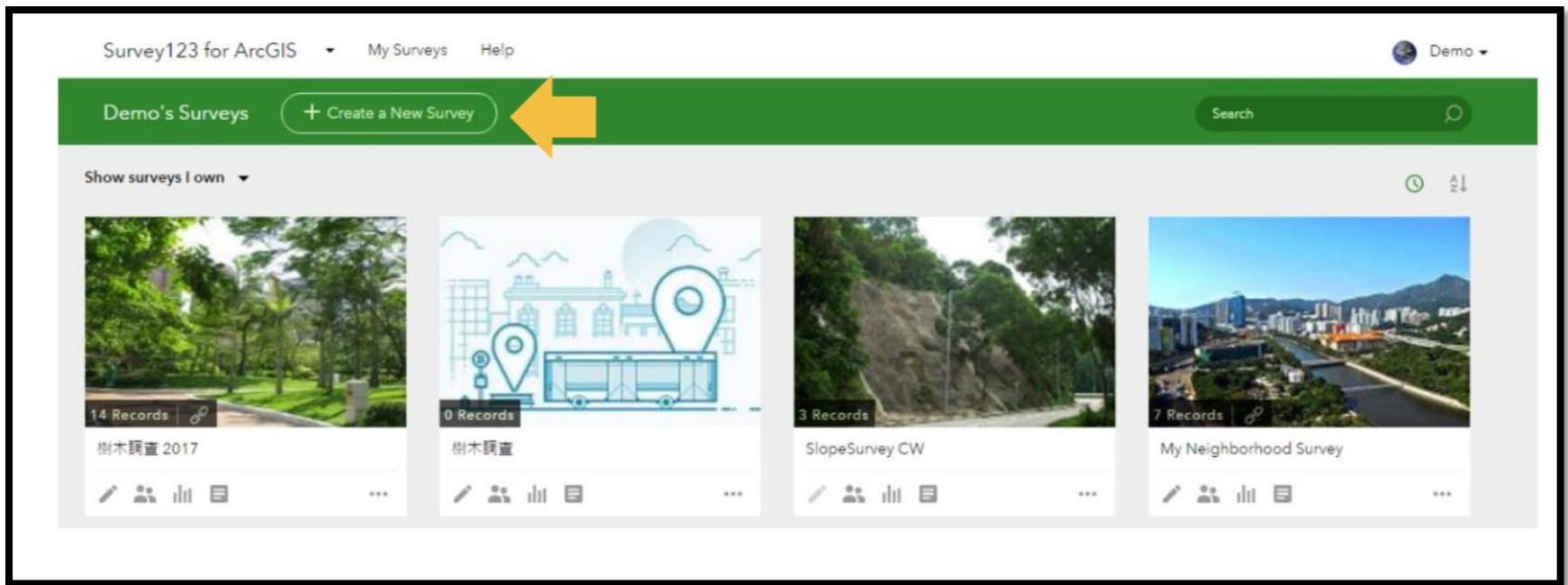
Preparing Your Survey

1. Browse to <http://survey123.arcgis.com> , and sign in with your ArcGIS organizational account.



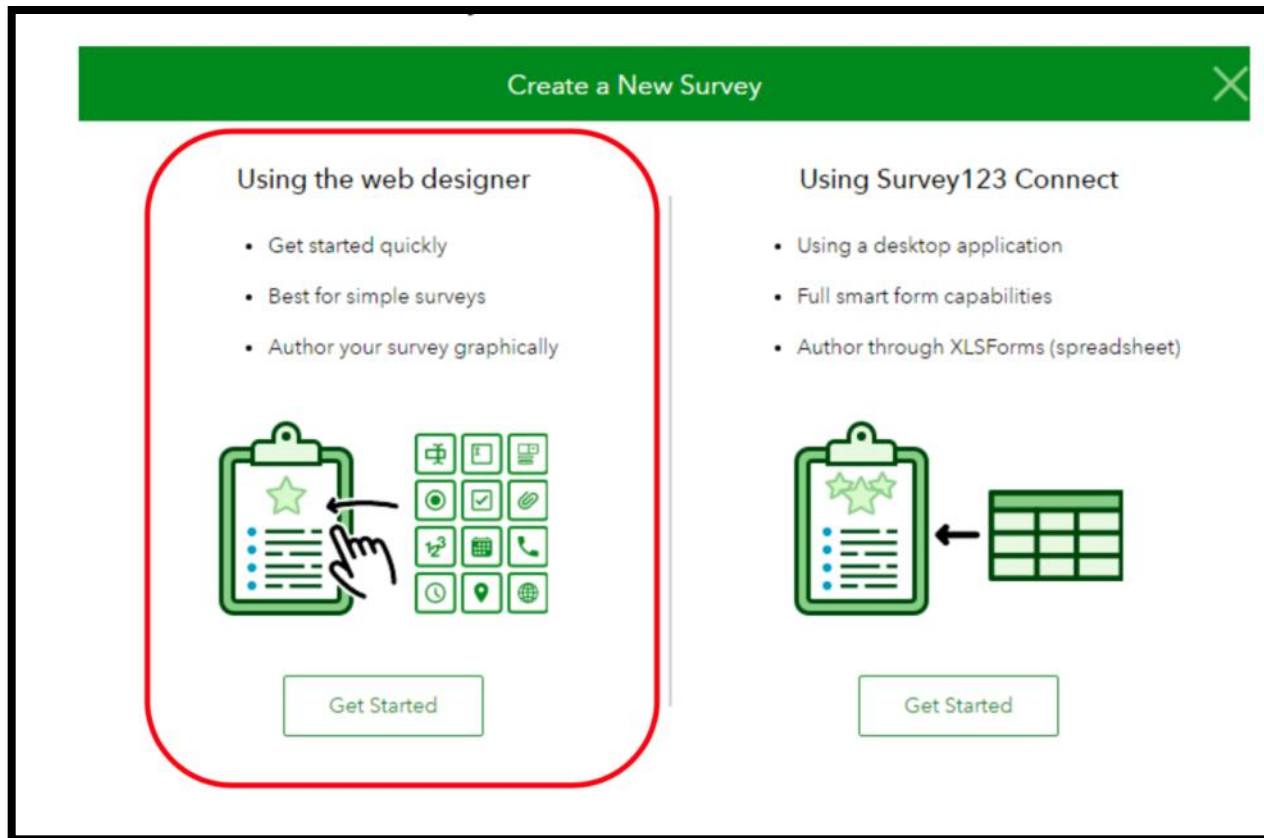
Get Started with Survey123 for ArcGIS Guideline

2. Click Create New Survey



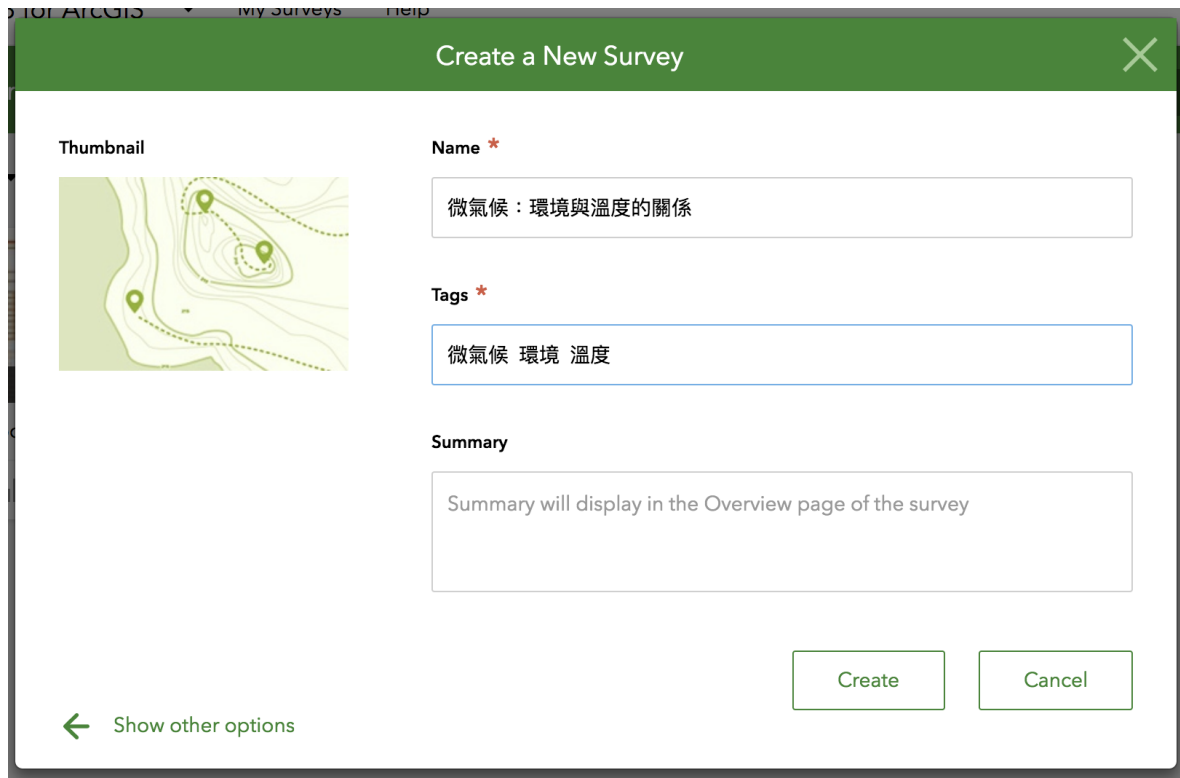
Get Started with Survey123 for ArcGIS Guideline

3. Click From Survey123 Web



Get Started with Survey123 for ArcGIS Guideline

4. Create a **form** and **name** 微氣候：環境與溫度的關係, enter **tags** CLST (a minimum of one tag is required) and a **description**.
You can also upload a picture as a **Thumbnail** of your survey by clicking the photo on the left. Once finish, click **Create**.



Create a New Survey

Thumbnail

Name *

微氣候：環境與溫度的關係

Tags *

微氣候 環境 溫度

Summary

Summary will display in the Overview page of the survey

Create Cancel

← Show other options



Get Started with Survey123 for ArcGIS Guideline

5. The Survey123 website displays an empty survey, with list of available **questions type** on the right.



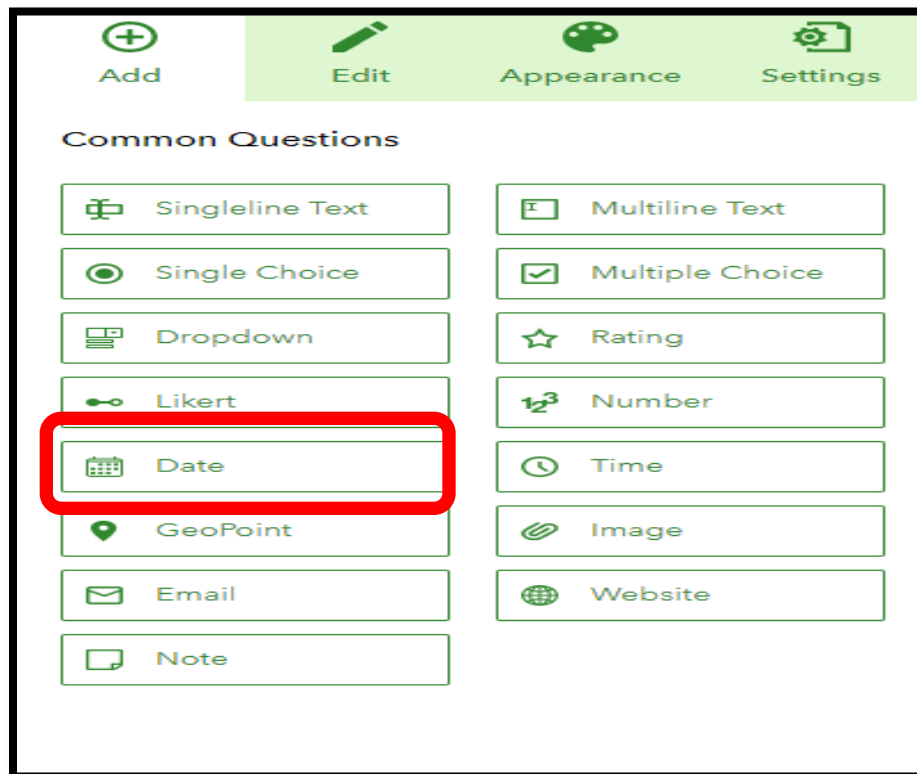
The screenshot displays the Survey123 interface. On the left, a survey form titled "環境與溫度" (Environment and Temperature) is shown. The form has a header with the title, a subtitle "探索環境與溫度的關係" (Explore the relationship between environment and temperature), a large dashed box for the survey content, and a "Submit" button at the bottom. The footer indicates "Powered by Survey123 for ArcGIS". On the right, a panel titled "Common Questions" lists various question types available for selection:

- Singleline Text
- Multiline Text
- Single Choice
- Multiple Choice
- Dropdown
- Rating
- Likert
- Number
- Date
- Time
- GeoPoint
- Image
- Email
- Website
- Note

Suggested Questions to Be Surveyed

Question 1: Date of Survey

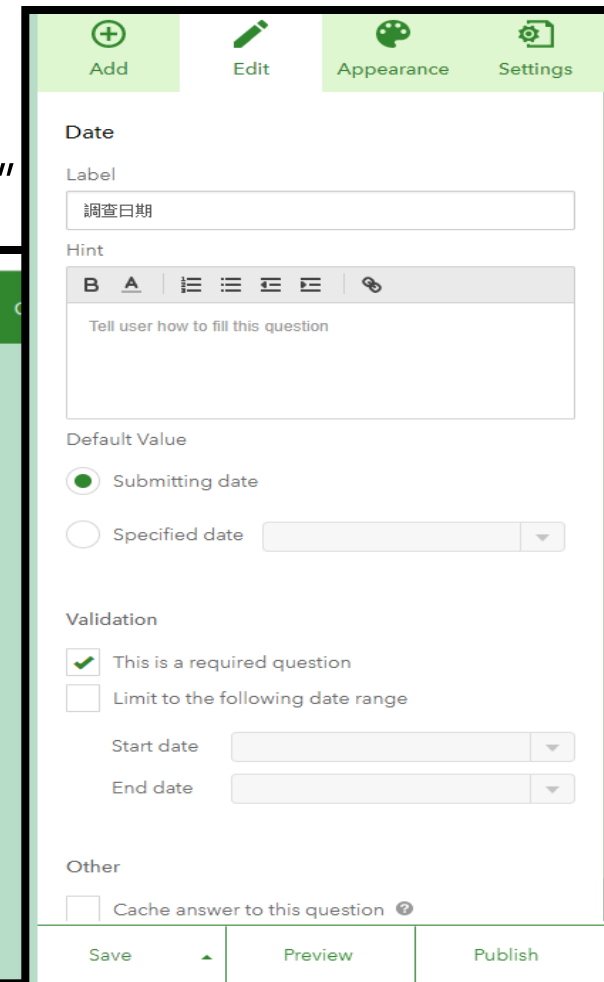
- For the first question, you want to know the **date** of data collection. Click the Date button from the question list and drag it to the form.



The screenshot shows the Esri Survey123 interface with the 'Edit' tab selected. The 'Common Questions' section displays a grid of question types. The 'Date' question type, represented by a calendar icon, is highlighted with a red rectangle.

Add	Edit	Appearance	Settings
Common Questions			
Singleline Text	Multiline Text		
Single Choice	Multiple Choice		
Dropdown	Rating		
Likert	Number		
Date	Time		
GeoPoint	Image		
Email	Website		
Note			

- Click the newly placed question to open the **Edit panel**, where you can enter a **suitable label** for the collection date.
- Now enter the following information:
 - Label: 考察日期
 - Default Value: Select Submitting date
 - Validation: Select "This is a required question"



Question 2: Short Answer (Name)

The student can enter the 天氣情況.

- Click the Add button on the right panel and **select Singleline Text**.
- Similar with the steps above in Question 1, click on the question box to **edit the information** of the question.

度

環境與溫度

探索環境與溫度的關係

調查日期 *

10/26/17 ▼

天氣情況 *

Data

Add Edit Appearance Settings

Singleline Text

Label

天氣情況

Hint

B A [List Icons] [Link Icon]

Tell user how to fill this question

Default Value

Predefined answer for this question

Validation

☒ This is a required question

☐ Set Min./Max. characters count

Min. [Text Box]

Max. [Text Box]

Other

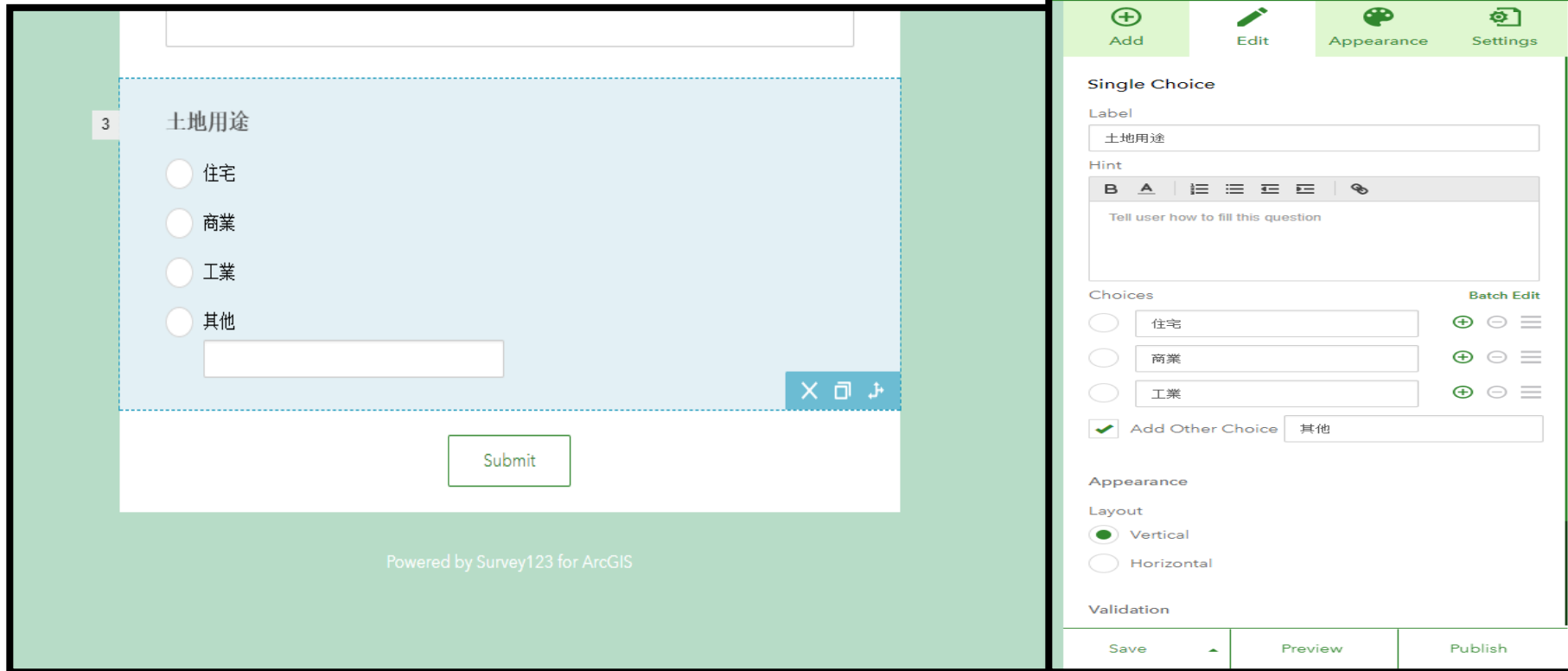
☐ Cache answer to this question ?

Saved Preview Publish

Question 3: Multiple Choice (Type of Shop)

The student is able to select the 土地利用.

- Select **Single Choice** from the Add panel.
- Click on the question box to edit the information of the question and add the **choices** that fit for your study area.'
- 住宅 商業 工業 其他



3 土地利用

☐ 住宅

☐ 商業

☐ 工業

☐ 其他

Submit

Powered by Survey123 for ArcGIS

Single Choice

Label
土地利用

Hint
Tell user how to fill this question

Choices

		Batch Edit
<input type="radio"/>	住宅	<input type="button" value="+"/> <input type="button" value="-"/> <input type="button" value="≡"/>
<input type="radio"/>	商業	<input type="button" value="+"/> <input type="button" value="-"/> <input type="button" value="≡"/>
<input type="radio"/>	工業	<input type="button" value="+"/> <input type="button" value="-"/> <input type="button" value="≡"/>

☒ Add Other Choice 其他

Appearance

Layout

☒ Vertical

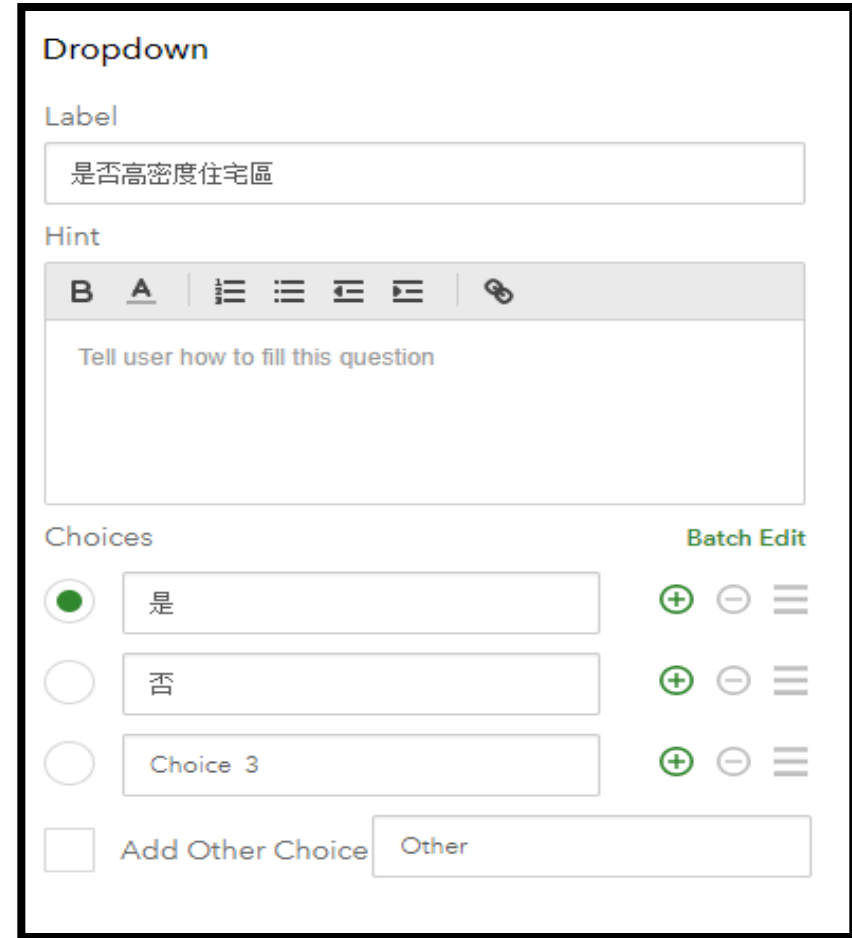
☐ Horizontal

Validation

Save Preview Publish

Question 4: Drop Down Menu

- 是否高密度住宅區？
- Now, select **Dropdown** from the Add panel.
- If you want to set the **default answer** to your question, click the green button next to your answer box (Pointed with the Red arrow)
- If you wish to add / remove **additional option**, click the “+” or “-” for each row.

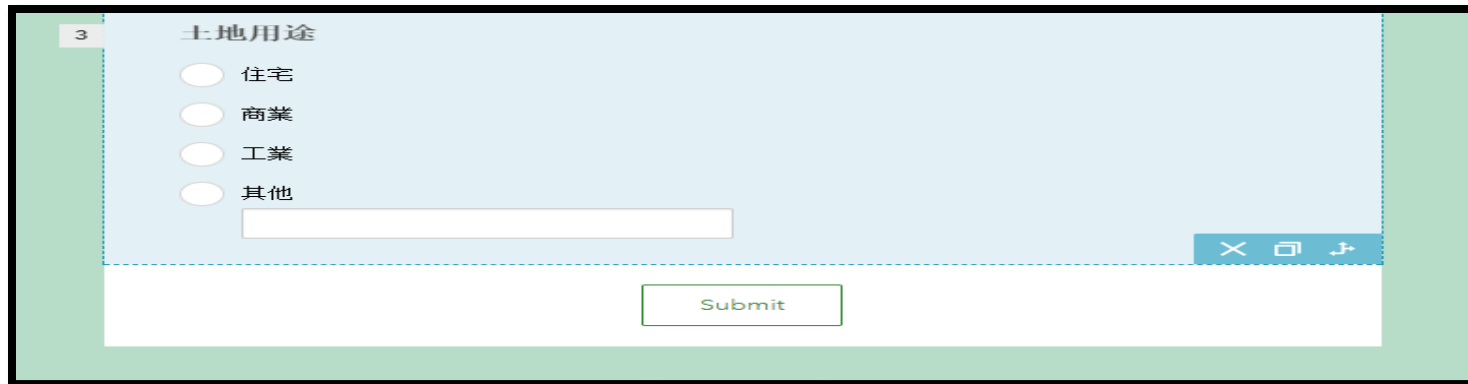


The screenshot shows the configuration interface for a 'Dropdown' question in Esri Survey123. The interface includes the following sections:

- Label:** A text box containing the question text '是否高密度住宅區'.
- Hint:** A text box with a placeholder 'Tell user how to fill this question'. Above it is a toolbar with icons for bold (B), italic (A), bulleted list, numbered list, decrease indent, increase indent, and a link icon.
- Choices:** A list of answer options. The first option is '是' (Yes), which is selected by default, indicated by a green circle. The second option is '否' (No). The third option is 'Choice 3'. To the right of each choice are three icons: a green plus sign (+), a grey minus sign (-), and a grey menu icon (three horizontal lines).
- Batch Edit:** A green link labeled 'Batch Edit' located to the right of the choices.
- Add Other Choice:** A checkbox and a text box labeled 'Other' for adding additional options.

Question 4A : if ... then ...

- In Survey123 for ArcGIS, it **supports responsive question** based on your answer.
- Then, click the question box for Question 4 and click the **Set Rule** button on the lower right corner of the box.



3 土地用途

☐ 住宅

☐ 商業

☐ 工業

☐ 其他

Submit

Then the **Set Rule** pop-up will appear. Now under the **IF** dropdown, select “住宅”. Then in the SHOW dropdown, select “是否高密度住宅區”.



Show selected questions only if the answer to this question is a specific choice.


If	Show
住宅	是否高密度住宅區


7


-Please Select-


-Please Select-

Question 5: GeoPoint

 Add

 Edit






 Appearance

 Settings

GeoPoint

Label

Hint



B A |     

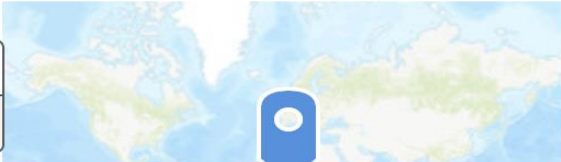
Tell user how to fill this question

Default Map

Topographic ▼

Home Location



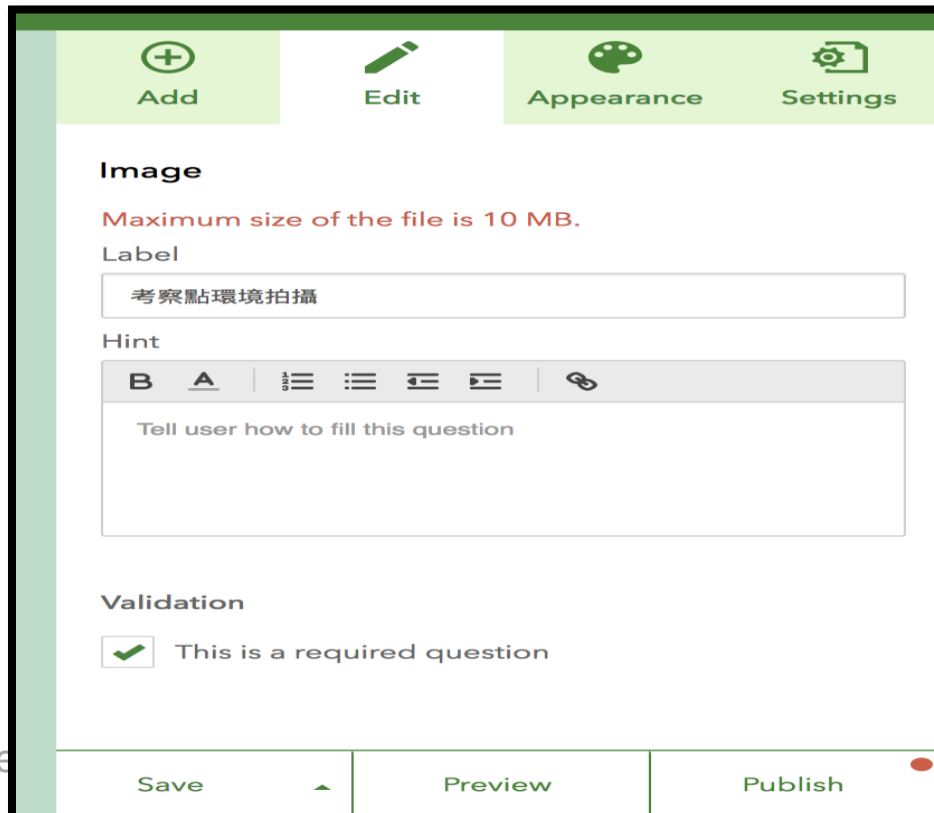
Save ▲

Preview

Publish ●

Question 6: Photo Answer

- You can provide an option for the student to **upload a photo** that less than 10MB for a survey record. Click Image from the
- Add panel and fill in the information about the question.



The screenshot shows the configuration interface for an 'Image' question in Esri Survey123. The top navigation bar includes 'Add', 'Edit', 'Appearance', and 'Settings'. The 'Image' section displays a warning: 'Maximum size of the file is 10 MB.' Below this, the 'Label' field contains the text '考察點環境拍攝'. The 'Hint' field has a rich text editor with a toolbar (bold, italic, bulleted list, numbered list, decrease indent, increase indent, link) and the placeholder text 'Tell user how to fill this question'. The 'Validation' section has a checkbox labeled 'This is a required question' which is currently checked. At the bottom, there are 'Save', 'Preview', and 'Publish' buttons.



Question 7: Long Answer (有關該區微氣候的特徵)

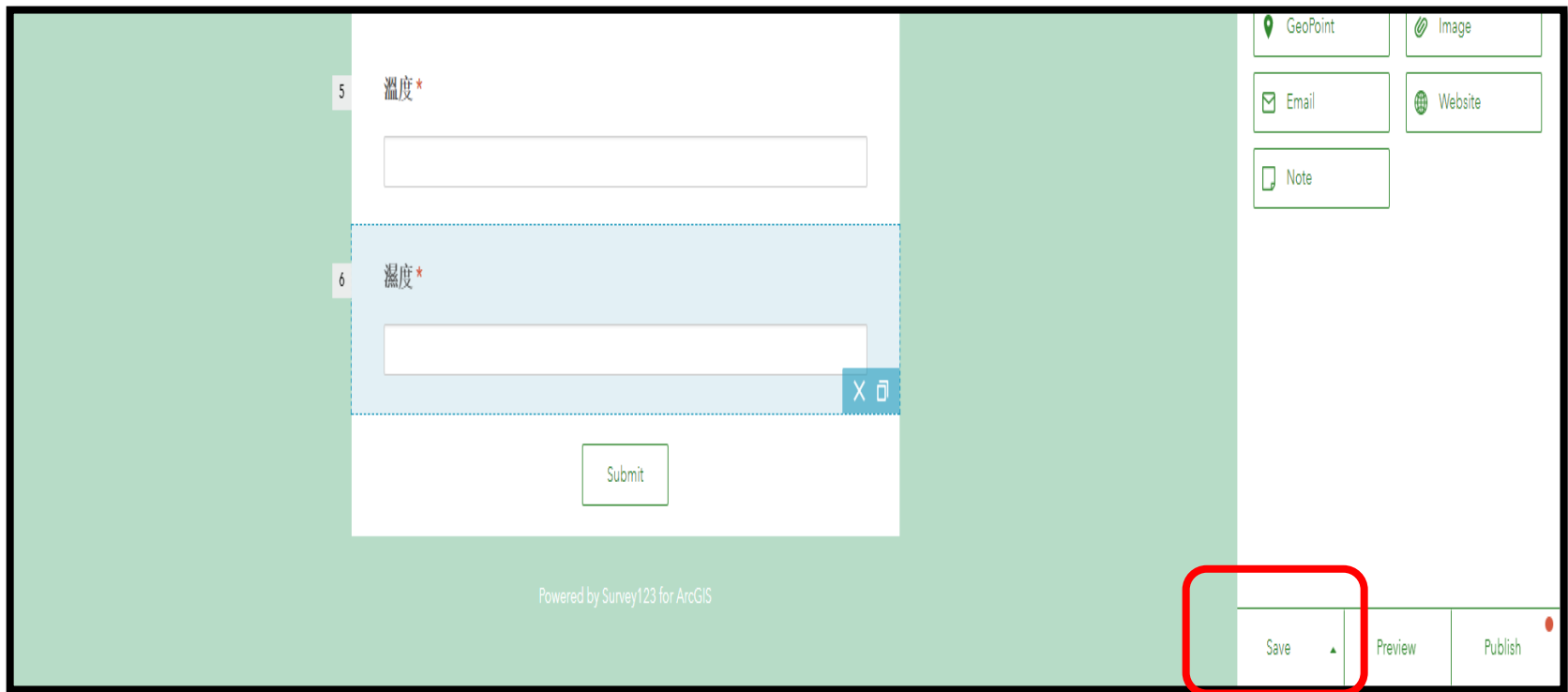
- In the last question, you can ask the students to write a few key points or sentences about 該區微氣候的特徵
- Please select **Multiline Text** and insert it into the survey.
- Optional item: you can set the **minimum and maximum** characters count in the edit panel on the right.



The screenshot shows the 'Multiline Text' question configuration panel. At the top, there are four tabs: 'Add' (with a plus icon), 'Edit' (with a pencil icon), 'Appearance' (with a palette icon), and 'Settings' (with a gear icon). The 'Edit' tab is active. Below the tabs, the question title 'Multiline Text' is displayed. The 'Label' field contains the text '有關該區微氣候的特徵'. The 'Hint' field has a rich text editor with bold (B), italic (A), bulleted list, numbered list, indent, and link icons, and the text 'Tell user how to fill this question'. The 'Default Value' field contains the text 'Predefined answer for this question'. The 'Validation' section has a checked checkbox and the text 'This is a required question'. At the bottom, there are three buttons: 'Save', 'Preview', and 'Publish'.

Save the Project : Survey123 for ArcGIS Guideline

Save your project by clicking the **SAVE** button on lower right.



The screenshot displays the Survey123 for ArcGIS interface. It features a form with two sections, each labeled '溫度*' (Temperature) and marked with a red asterisk. The first section is numbered '5' and the second is numbered '6'. Each section contains a text input field. Below the second input field is a blue button with a white 'X' icon. A green 'Submit' button is located at the bottom center of the form. On the right side of the interface, there are several buttons: 'GeoPoint', 'Image', 'Email', 'Website', and 'Note'. At the bottom right, there are three buttons: 'Save', 'Preview', and 'Publish'. The 'Save' button is highlighted with a red rectangular box.

Save the Project : Survey123 for ArcGIS Guideline

- You can preview the whole survey by clicking the **Preview** button.
- By clicking the button on the right, you can preview your survey in a desktop **computer, a smartphone or tablet**.
- Click "X" to close the Preview window.
- if you are satisfy with the question and layout, you can click **Publish** to send it to ArcGIS Online.



Share the Project : Survey123 for ArcGIS Guideline

- Share to Group
- Share via web link

Share the Project : Survey123 for ArcGIS Guideline

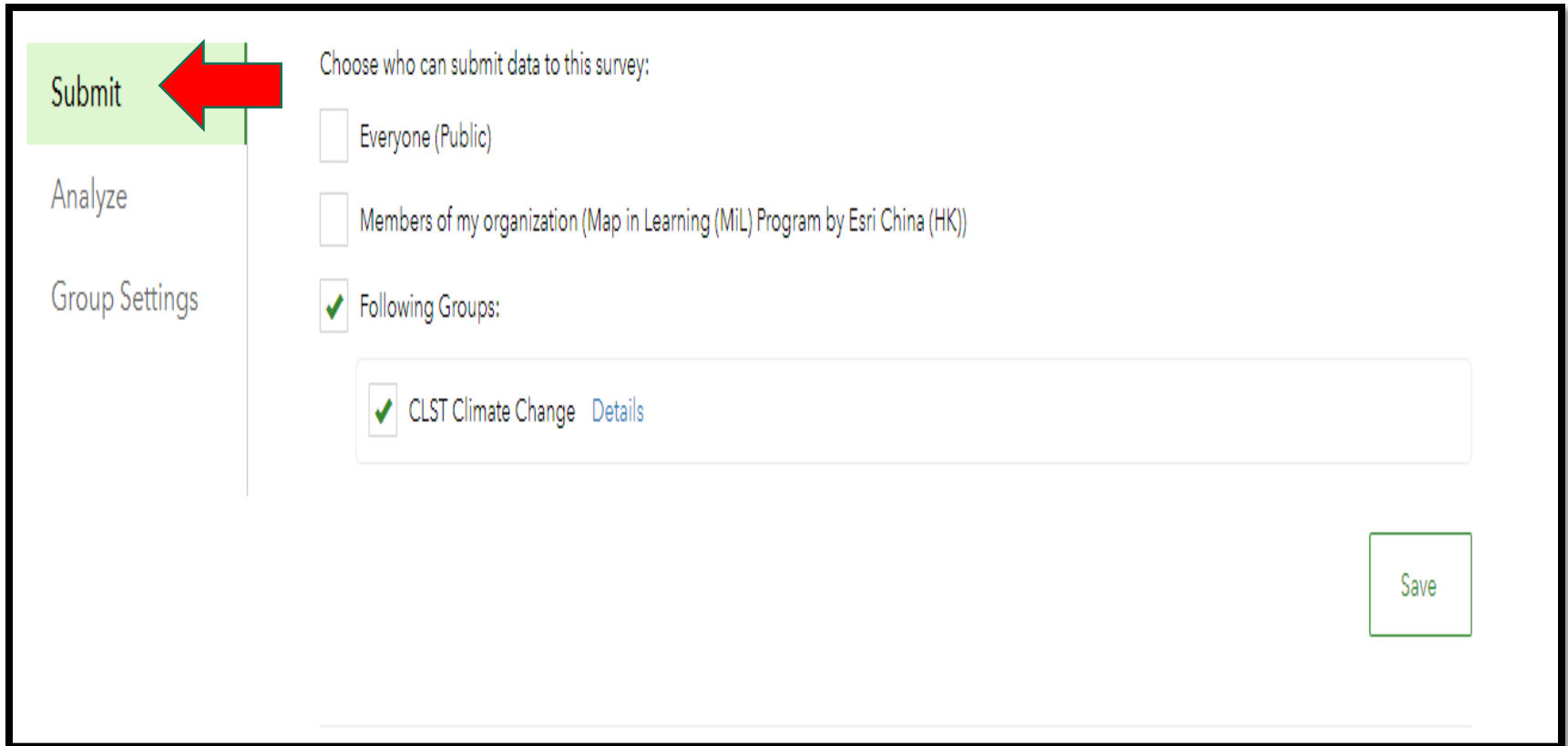
Share to Group

In cases you wish to assign students into different groups, for doing group project or class management, you can use the **Group function** in ArcGIS Online to share specific content to a group of students.

To share the survey to specific group in Survey123 for ArcGIS. First, click the thumbnail of your survey project in **My Surveys** section, and then click **Collaborate** in the upper right banner.

"**Submit**" item will be as default to show. Then select **Following Groups**, and select the Group you want to share in the box below. Click **Save** when finish.

Share the Project : Survey123 for ArcGIS Guideline

A screenshot of the Survey123 web interface showing the 'Share' settings. On the left is a navigation menu with 'Submit', 'Analyze', and 'Group Settings'. The 'Submit' button is highlighted in green and has a red arrow pointing to it. The main area is titled 'Choose who can submit data to this survey:' and contains three options: 'Everyone (Public)', 'Members of my organization (Map in Learning (MIL) Program by Esri China (HK))', and 'Following Groups:'. The 'Following Groups:' option is selected with a green checkmark. Below it, a list shows 'CLST Climate Change' with a green checkmark and a 'Details' link. A 'Save' button is located at the bottom right of the settings area.

Submit

Analyze

Group Settings

Choose who can submit data to this survey:

☐ Everyone (Public)

☐ Members of my organization (Map in Learning (MIL) Program by Esri China (HK))

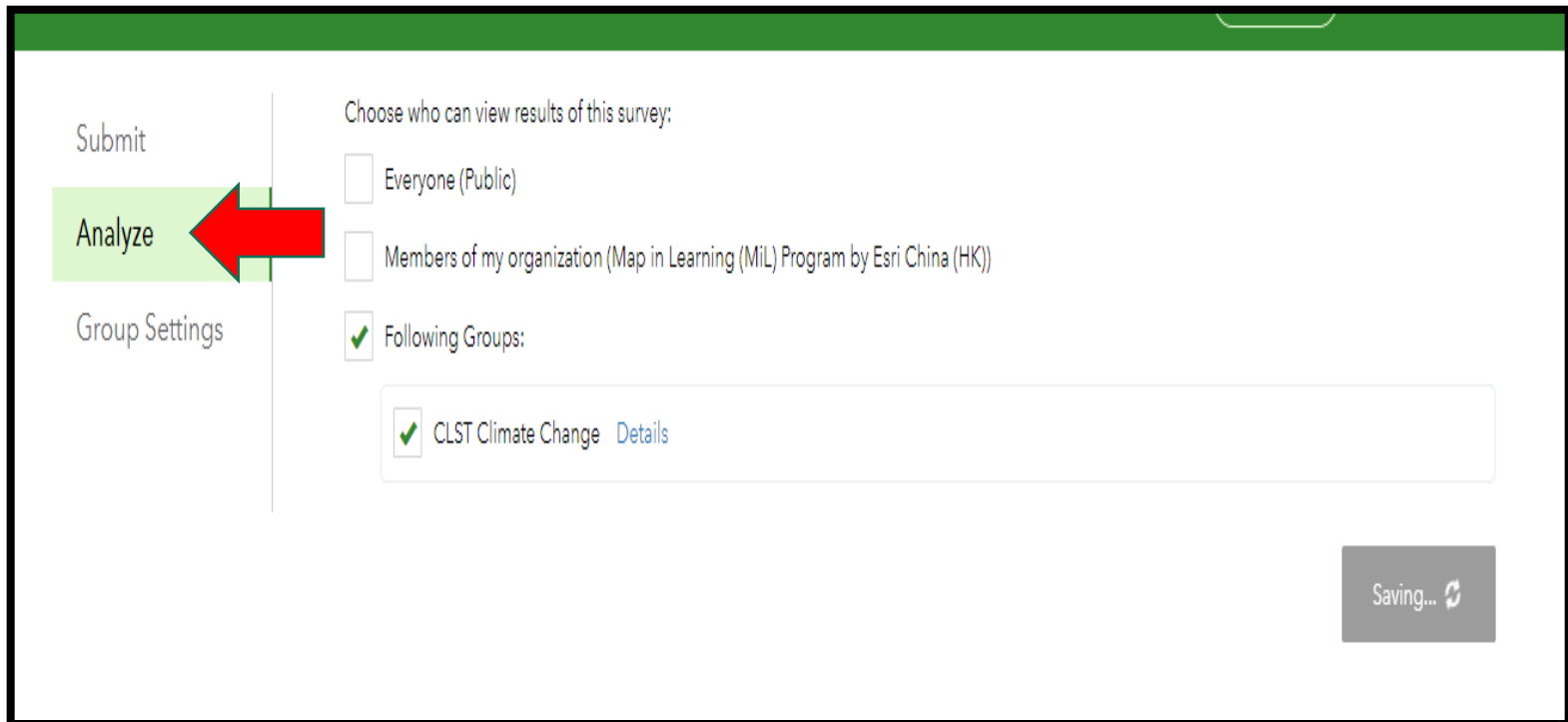
☒ Following Groups:

☒ CLST Climate Change [Details](#)

Save

Share the Project : Survey123 for ArcGIS Guideline

- To open the **analyze function** to specific group in Survey123 for ArcGIS (details will be covered in later part of this manual)
- In **the Collaborate** section, select **Analyze**, then select Following Groups, and select the Group you want to share in the box below. Click Save when finish.



The screenshot shows the 'Collaborate' section of the Survey123 interface. On the left, there is a vertical menu with three options: 'Submit', 'Analyze', and 'Group Settings'. The 'Analyze' option is highlighted with a green background, and a large red arrow points to it from the left. To the right of the menu, the text 'Choose who can view results of this survey:' is displayed. Below this text are three radio button options: 'Everyone (Public)', 'Members of my organization (Map in Learning (MIL) Program by Esri China (HK))', and 'Following Groups:'. The 'Following Groups:' option is selected, indicated by a green checkmark. Below this, there is a list of groups with a search bar. The group 'CLST Climate Change' is selected, indicated by a green checkmark, and a 'Details' link is visible next to it. At the bottom right of the form, there is a 'Saving...' button with a circular arrow icon.

Share the Project : Survey123 for ArcGIS Guideline .

- Share via web link In the lower part of the Collaborate section, you can find the **web link/QR code** for accessing the survey.
- Note: ArcGIS Online account's log-in to the survey is required if your survey **is limited to your school only**.
- The link for each survey is generated dynamically, please do not copy the link from the screen capture below as your share link.

Survey link:

<https://survey123.arcgis.com/share/f609ce1c70f44f6293c1a49635d0967d>



- ☒ Open the survey in browser directly
- ☐ Ask the user how to open the survey, in browser or in the Survey123 field app
- ☐ Open the survey in the Survey123 field app directly. ([Learn more about this option](#))

Accessing the Project : Survey123 for ArcGIS Guideline

- Web Link
- Dedicated App

Accessing the Project : Survey123 for ArcGIS Guideline

Accessing via Web Link

- If you had shared the survey with web link or QR code, the survey will open in the web browser.
- Survey123 is currently supported on the following browsers:

Chrome

Firefox

Safari

Edge

Internet Explorer 11

Accessing the Project : Survey123 for ArcGIS Guideline

Accessing via Dedicated App

- The dedicated app provides an easy and convenient way for you or your students to **view** and **complete** the surveys assigned to them in a single app.
- The app can be downloaded at:
<http://doc.arcgis.com/en/survey123/download/>
- Survey123 is currently available on the following platforms:
 - Windows 7 or later
 - Mac OS X 10.10 or later
 - Android 4.1 or later
 - iOS 8 or later
 - Windows Phone 10 or later
 - Ubuntu (Linux) 14.04 LTS (64 bit) or later

Submitting the Project : Survey123 for ArcGIS Guideline

Submitting the Survey via Dedicated App

- Doing the Survey with Web Browser
- Doing the Survey with Mobile Apps

Submitting the Project : Survey123 for ArcGIS Guideline

Doing the Survey with Web Browser

- Surveys made in the Survey123 with web link can have results submitted immediately through simply pressing the **Submit button**. There is no caching to send later.
- Reminder: Be aware that after sending a survey it cannot be edited. Make sure, before sending the survey, that all details are correct.

Submitting the Project : Survey123 for ArcGIS Guideline

Doing the Survey with Mobile Apps

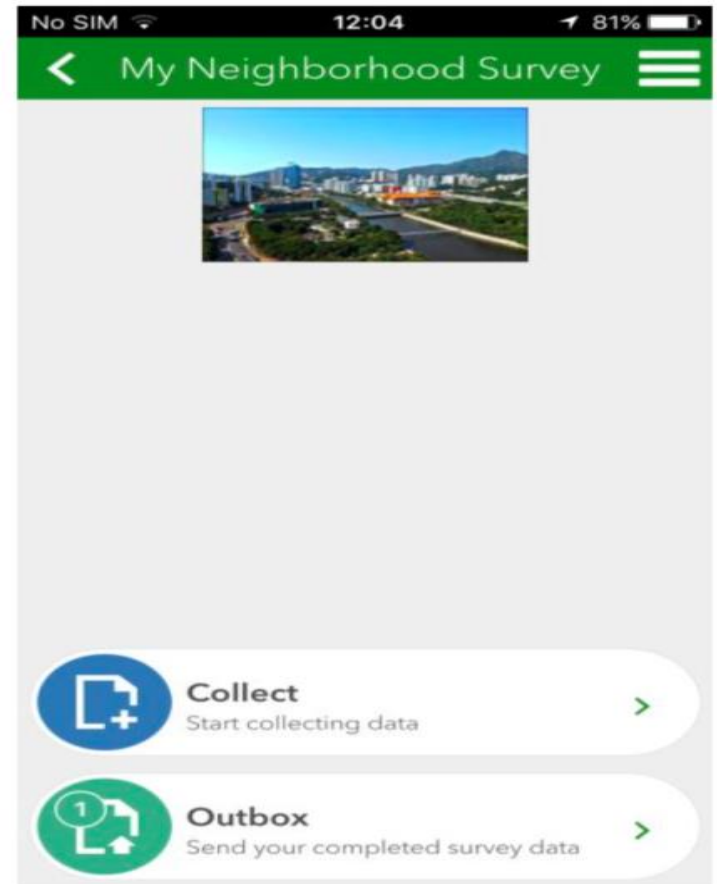
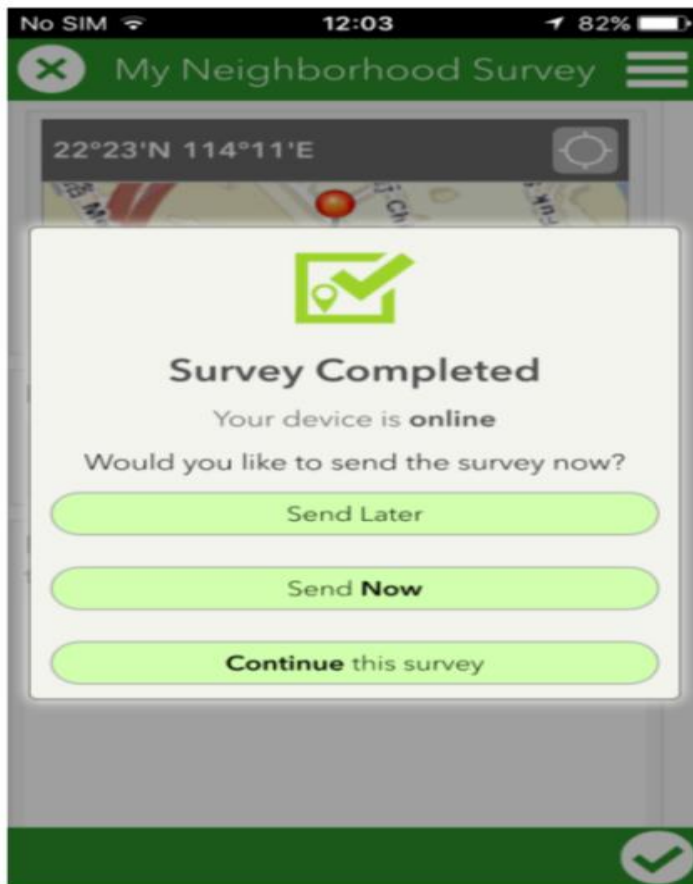
In using Survey123 app on mobile platform like iOS and Android, students can save a draft survey record on their phone, and continue work on it before submitting the record to ArcGIS Online.

Whenever user wish to upload or save the survey record, students can click the icon at the bottom right corner.

- i. To upload your record, tab Send Now; to save your record, tab Send Later.
- ii. To upload continue your previously saved survey, tab the Outbox icon upon opening the survey.

Submitting the Project : Survey123 for ArcGIS Guideline

Doing the Survey with Mobile Apps



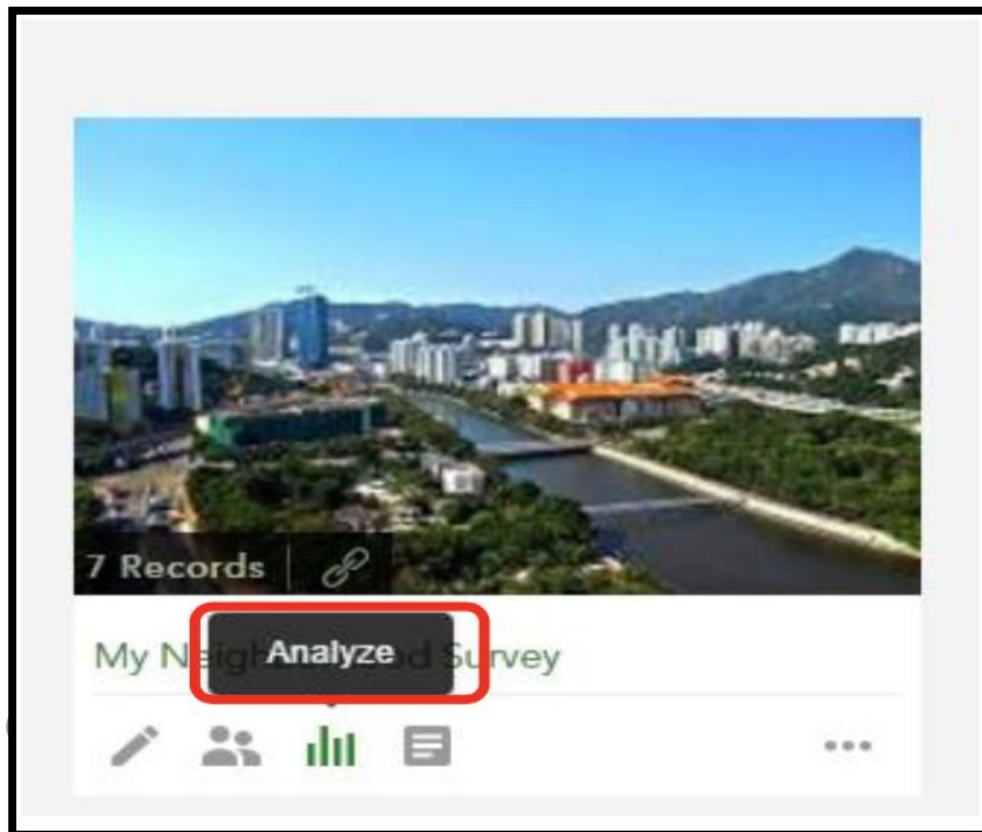
Understanding Your Data

- Teachers and students can easily **see the result** for each question in the form of charts, tables or map (options will be varied depending on the type of questions) with the **Analyze function** of Survey123.
- Currently, this function is available on **web version** (survey123.arcgis.com) only.

Understanding Your Data

Teachers

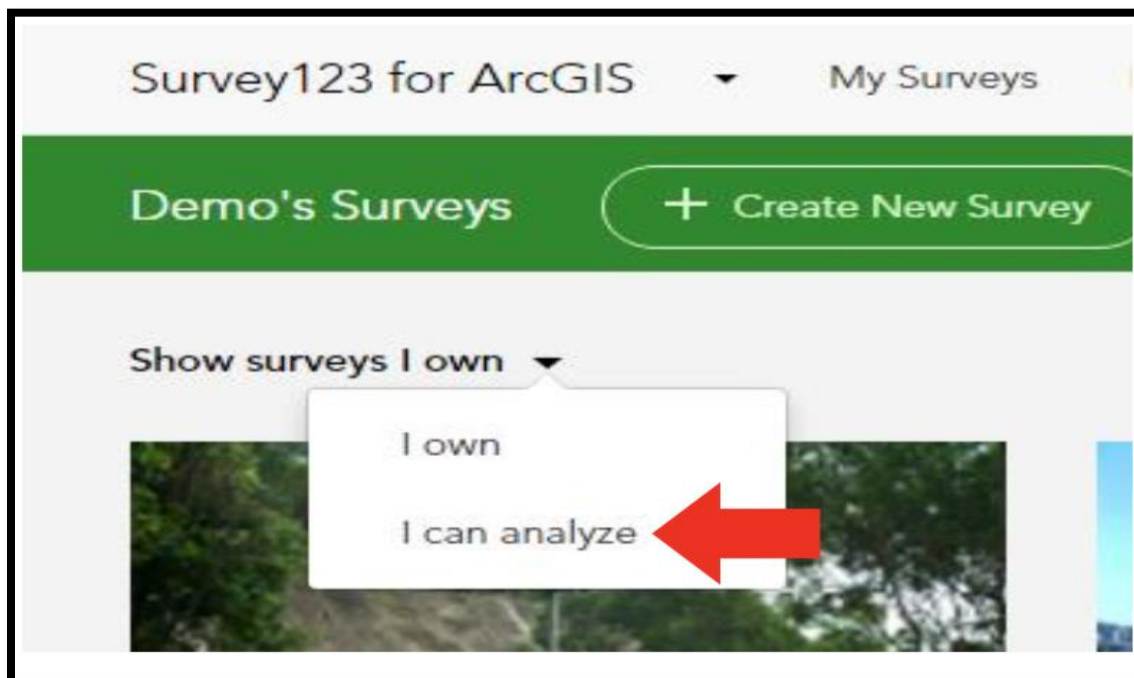
After click the **Analyze** button under the thumbnail of your survey to view the result.



Understanding Your Data

Student

- If the students wish to perform **analyze function to their own survey**, upon log-in to the account, they need to select Show surveys I can analyze in the top left corner of the main page of Survey123.
- Then click the thumbnail of your survey, then click **Analyze** on the top banner to view the result.



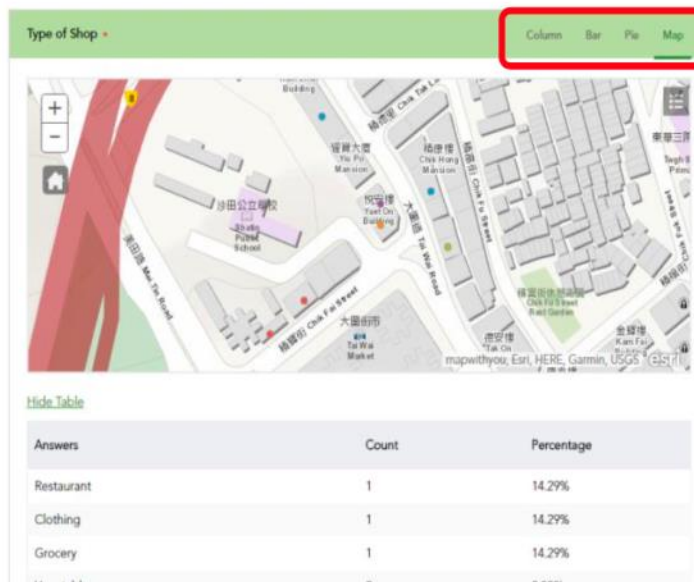
Understanding Your Data

Viewing Your Result for Each Questions

- Depending on your questions, Survey123 will present the data in **different form**.
- For example, in the question of "Type of Shop" , it had the option of showing **column chart, bar chart, pie chart or on a map**.
- You can choose these options on the banner for each question.

Understanding Your Data

Viewing Your Result for Each Questions

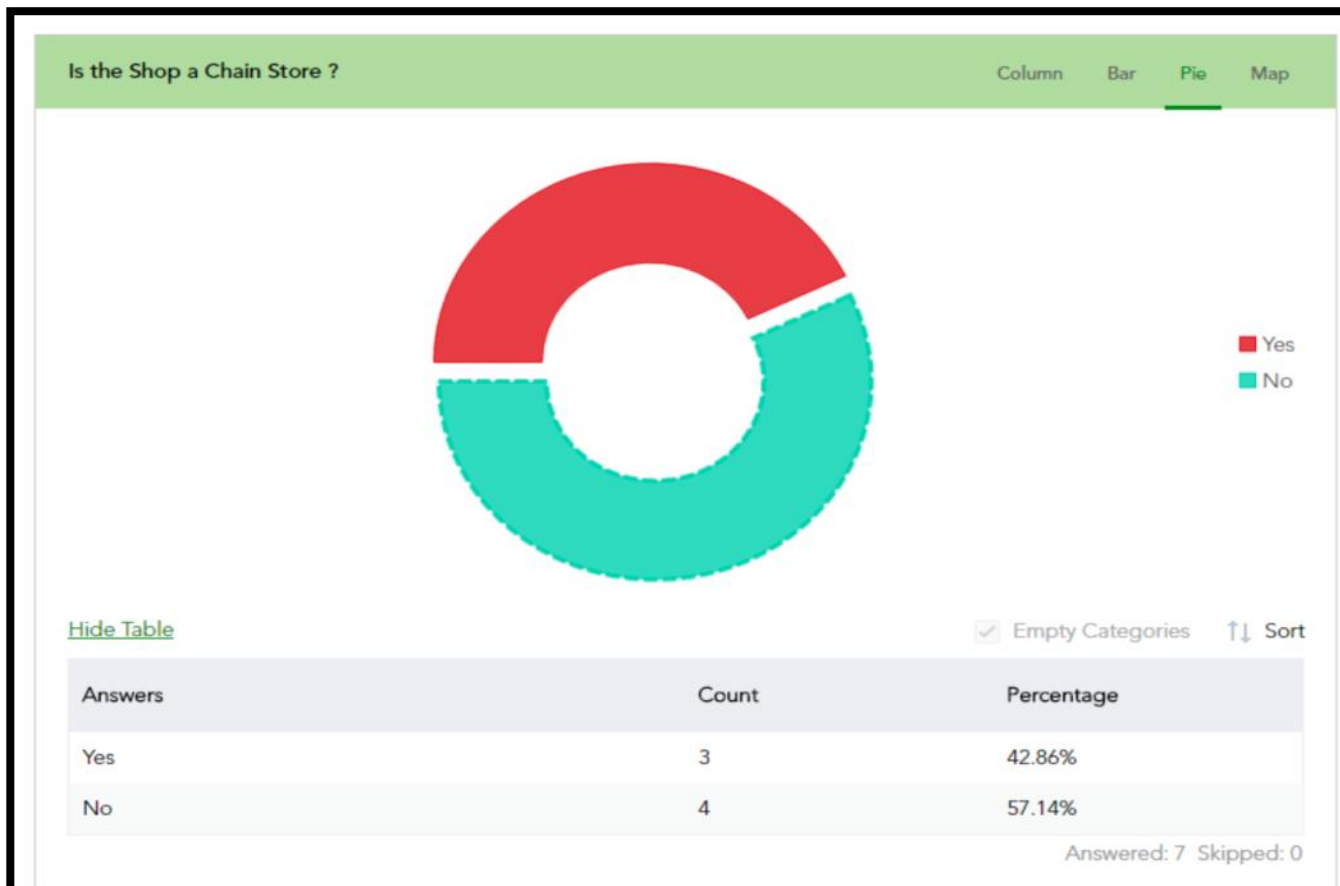


Column view and map view of your data.



Understanding Your Data

Viewing Your Result for Each Questions



Pie chart view of your data.



Understanding Your Data

An Overview of Your Survey with a Map

- The **Data tab** contains ways to view all of your survey responses as raw data and mapping.
- This provides alternative methods to examine your results as well as **convert your data into additional formats** for use by other applications.
- The Data page displays your data through a table and map with all results. The map automatically zooms to a level displaying as many of your results as possible.

Understanding Your Data

An Overview of Your Survey with a Map

- The Data page displays your data through **a table** and map with all results.
- The map **automatically zooms** to a level displaying as many of your results as possible.

My Neighborhood Survey

Overview

Design

Collaborate

Analyze

Data



surveyPoint (7 features, 0 selected)

Options

Date of Survey	Name	Type of Shop	Other - Type of Shop	Is the Shop a Chain Store ?	Country of Origin of the Chain Store	Please Provide a Brief Description of the Shop
Feb 16, 2017	McDonald's	Restaurant		Yes	USA	Opening 24 hours
Feb 16, 2017	Park n Shop	Grocery		Yes	Hong Kong	The shop been opened for 10+ years
Feb 16, 2017	ABC Clothing	Clothing		No		
Feb 16, 2017	Tai Wai Pharmacy	Other	Pharmacy	No		The shop is newly opened
Feb 16, 2017	Hang Seng Bank	Other	Bank	Yes	Hong Kong	Newly renovated
Feb 16, 2017	Fai Kei	Meat		No		Open on morning only
Feb 16, 2017	Keung Kei	Meat		No		Only open in morning

Open in ArcGIS Map Viewer

Expand Table

☒ Show Individual Response

CSV

Download

02/16/2017 - 02/16/2017

Understanding Your Data

An Overview of Your Survey with a Map

- Click an entry in the table to focus on its point on the map, and open an Individual Response section, detailing the single response as much as possible.
- You can also do the same in reverse, clicking a map point to highlight an individual entry in the table and in the Individual Response section.
- This is a quick way to see all answers for a specific entry. From the **Individual Response** section you can also choose to **Print Current Response**

My Neighborhood Survey

Overview

Design

Collaborate

Analyze

Data



surveyPoint (7 features, 1 selected)			Options	Individual Response	
Date of Survey	Name	Type of Shop		Date of Survey	
Feb 16,2017	McDonald's	Restaurant		Feb 16,2017	Submitted By: sslam_agolhk
Feb 16,2017	Park n Shop	Grocery			Submitted Time: 02/16/2017 12:07:46
Feb 16,2017	ABC Clothing	Clothing		Name	
Feb 16,2017	Tai Wai Pharmacy	Other		McDonald's	
Feb 16,2017	Hang Seng Bank	Other		Type of Shop	
Feb 16,2017	Fai Kei	Meat		Restaurant	
				Is the Shop a Chain Store ?	
				Yes	

[Open in ArcGIS Map Viewer](#)

Expand Table



Show Individual Response

02/16/2017 - 02/16/2017

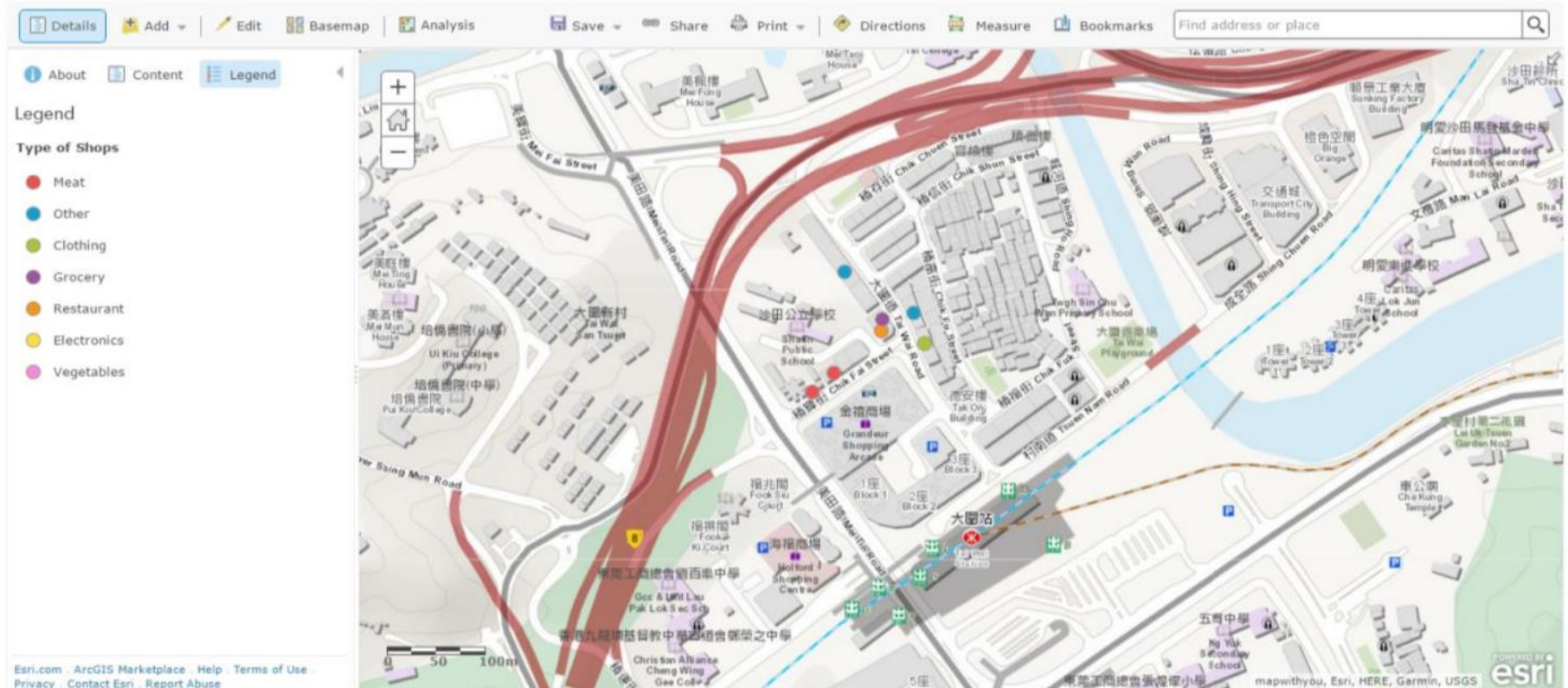
CSV

Download

Understanding Your Data

Home ▾ My Neighborhood Survey

New Map ▾ Create Presentation Demo ▾



Task 3: How to create a Story Maps on ArcGIS online

[Story Maps](#) ▾ [Apps](#) [Gallery](#) [Resources](#) [Blog](#) [My Stories](#)

[English](#) ▾

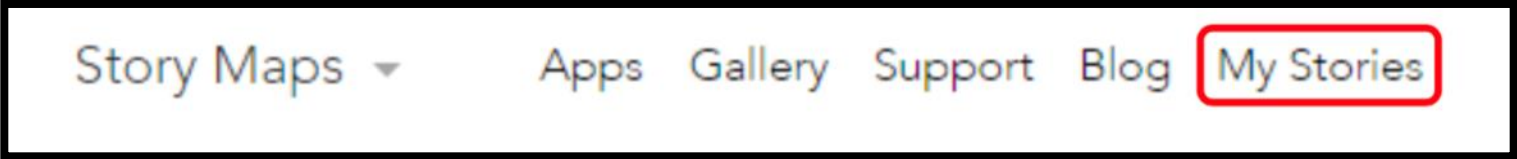


Story Maps

Everyone has a story to tell.
Harness the power of maps to tell yours.

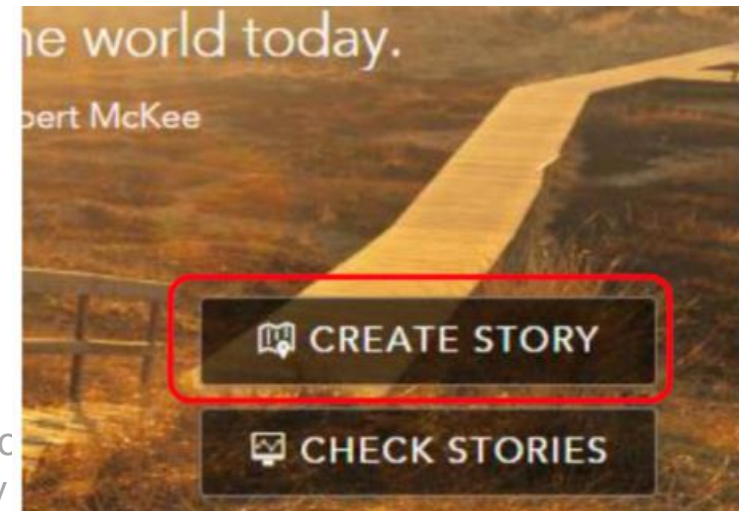
How to create a Story Maps on ArcGIS online

1. Go to <https://storymaps.arcgis.com/en>
2. Login with your ArcGIS account
3. On the menu at the top, Click **My Stories**

A screenshot of the top navigation menu of the ArcGIS Story Maps website. The menu items are "Story Maps", "Apps", "Gallery", "Support", "Blog", and "My Stories". The "My Stories" item is highlighted with a red rectangular box, and the entire menu area is enclosed in a black rectangular border.

Story Maps ▾ Apps Gallery Support Blog **My Stories**

4. Click **CREATE STORY** on the right



How to create a Story Maps on ArcGIS online

5. Choose an App to **create a new story**



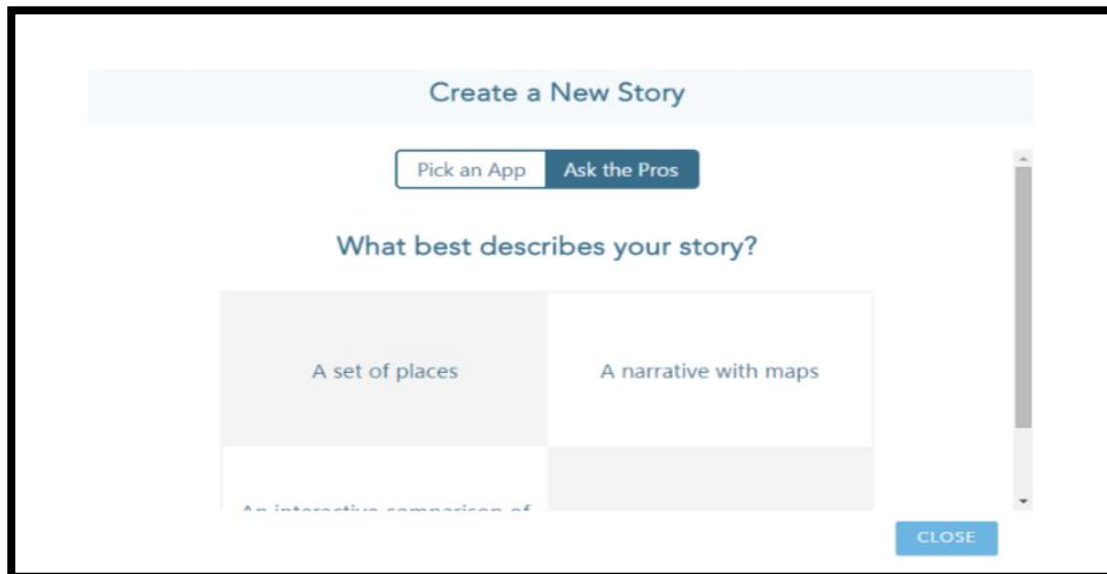
How to create a Story Maps on ArcGIS online

There are **eight types** of App can be used in Story Maps

- Story Map Tour
- Story Map Journal
- Story Map Cascade
- Story Map Series
- Story Map Crowdsourcing
- Story Map Shortlist
- Story Map Swipe / Story Map Spyglass
- Story Map Basic

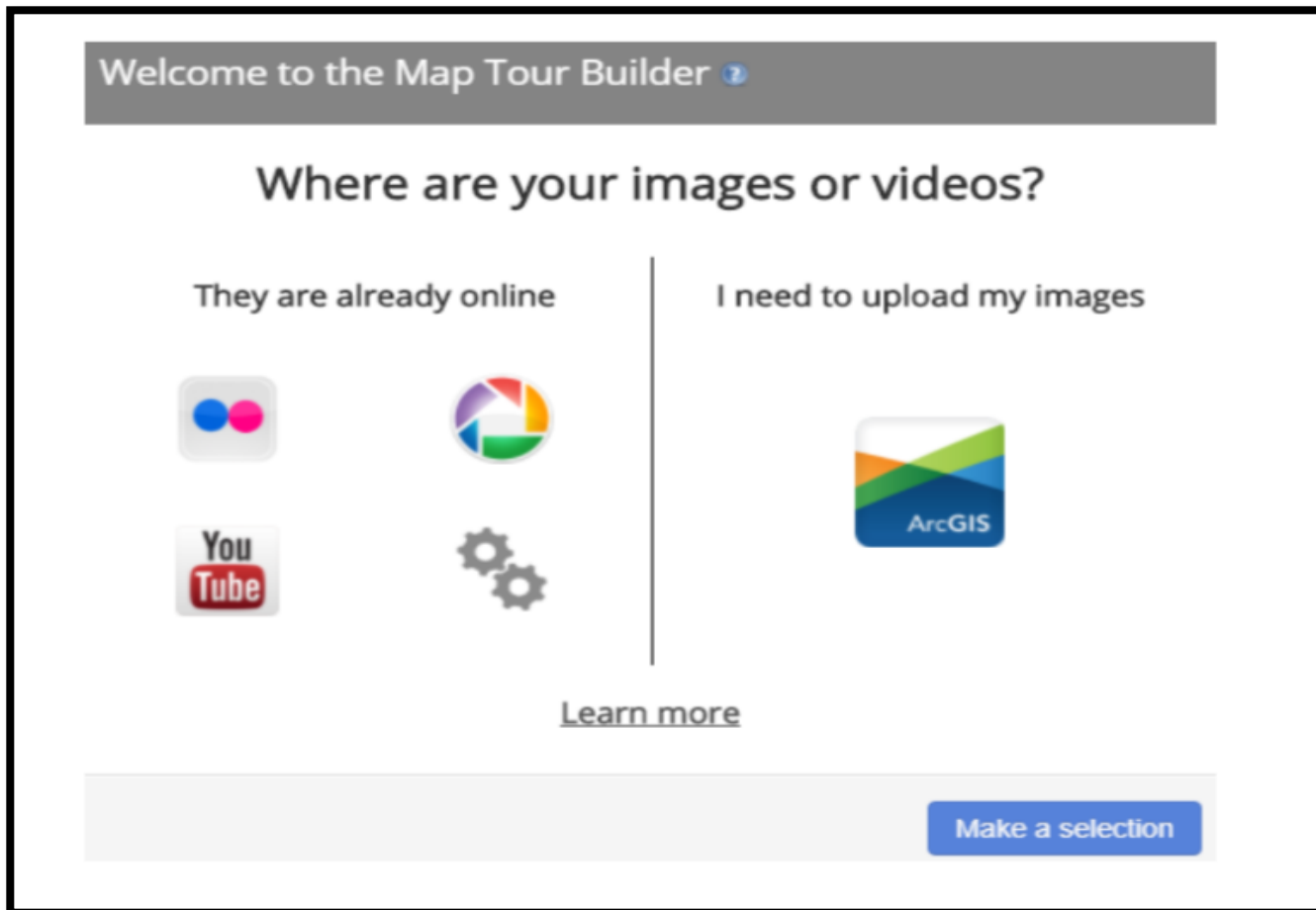
How to create a Story Maps on ArcGIS online

- When mouse hovering on different Apps, a short description of the App will be appeared.
- If you are not sure which App will suit your requirement, you can click **Ask the Pros**
- A series of question will be asked. The questions will help you to select the best App for your story maps.



How to create a Story Maps on ArcGIS online

6. You can choose the use **image or videos** from various online resources or uploaded own images.



How to create a Story Maps on ArcGIS online

7. Enter a layer for images and tour points. All of your uploaded images will be stored in this feature layer.
8. After entering the layer name, click **Create the layer**.

Create hosted Map Tour layer

A new Feature Layer will be created for your images and Tour points.
The Tour layer won't be shared with anyone unless you share your Map Tour.

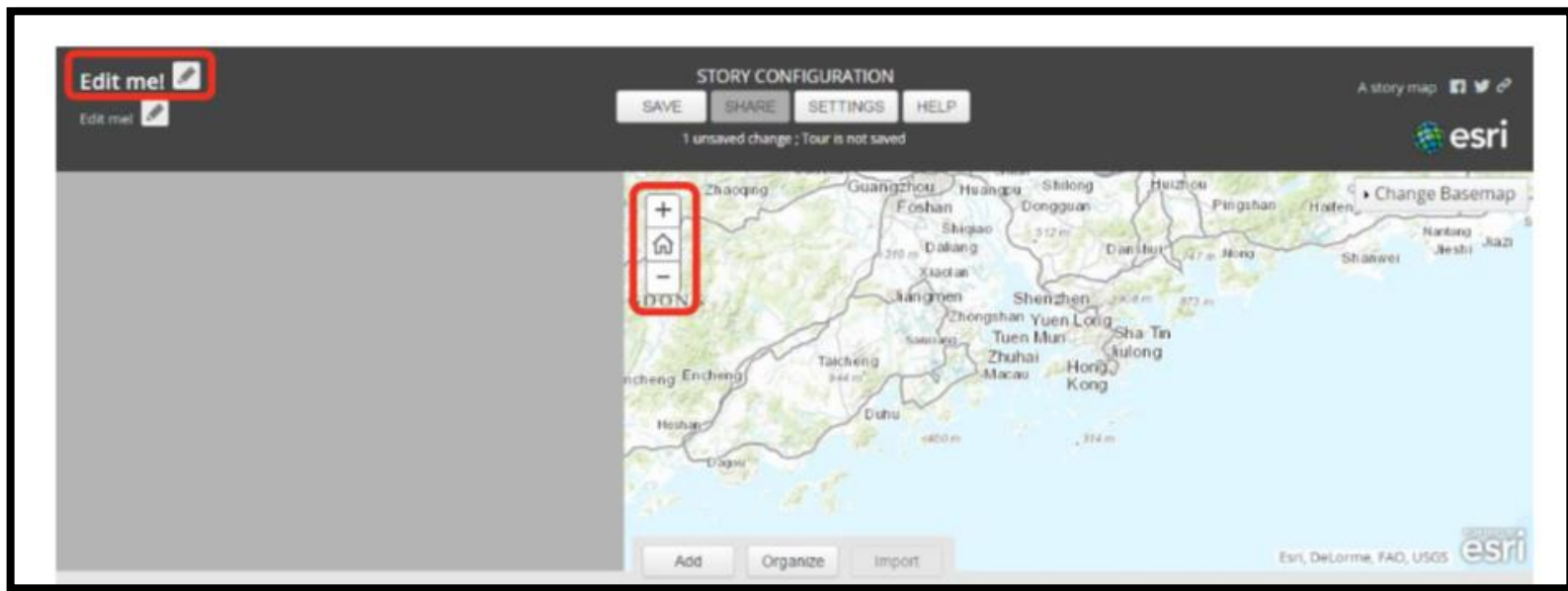
Layer name:

Folder:



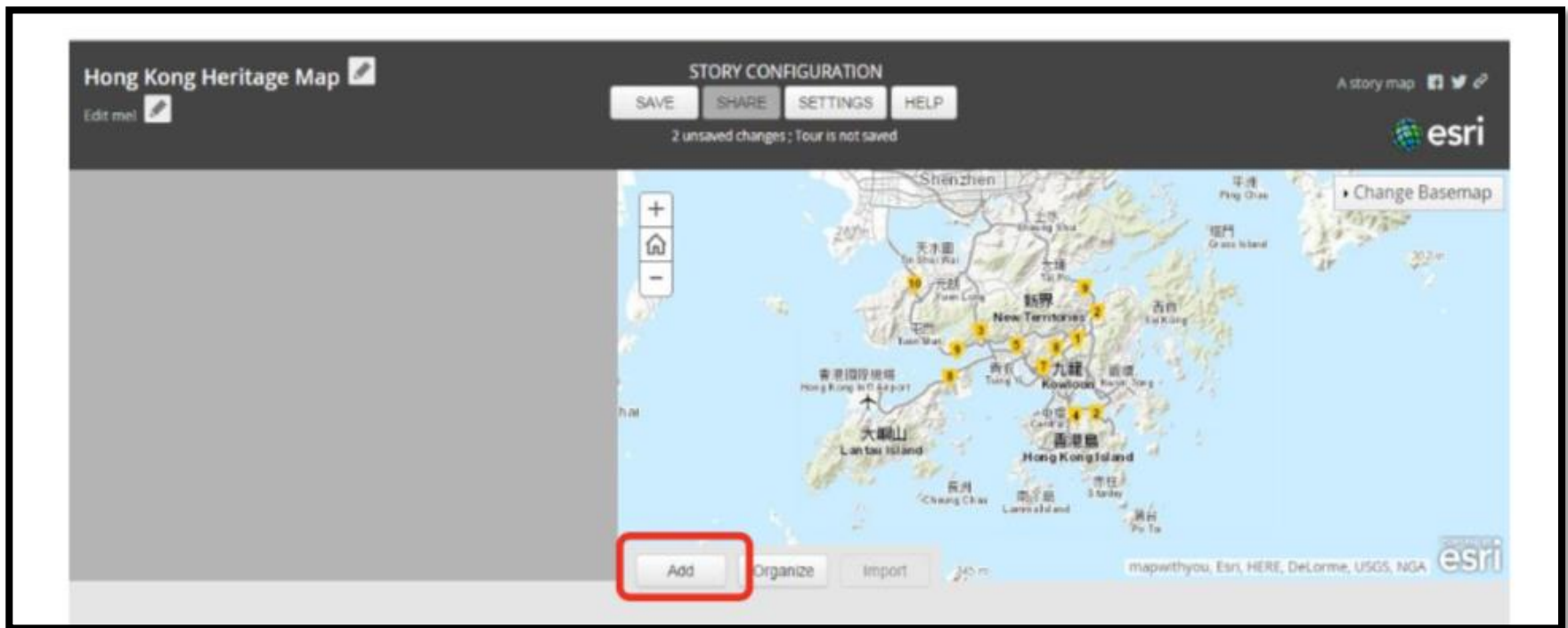
How to create a Story Maps on ArcGIS online

9. The main interface for Story Maps will appear. Click **Edit me!** To edit the title of Story Map. The map extent for story maps can be adjusted **by + or – sign** on the map.



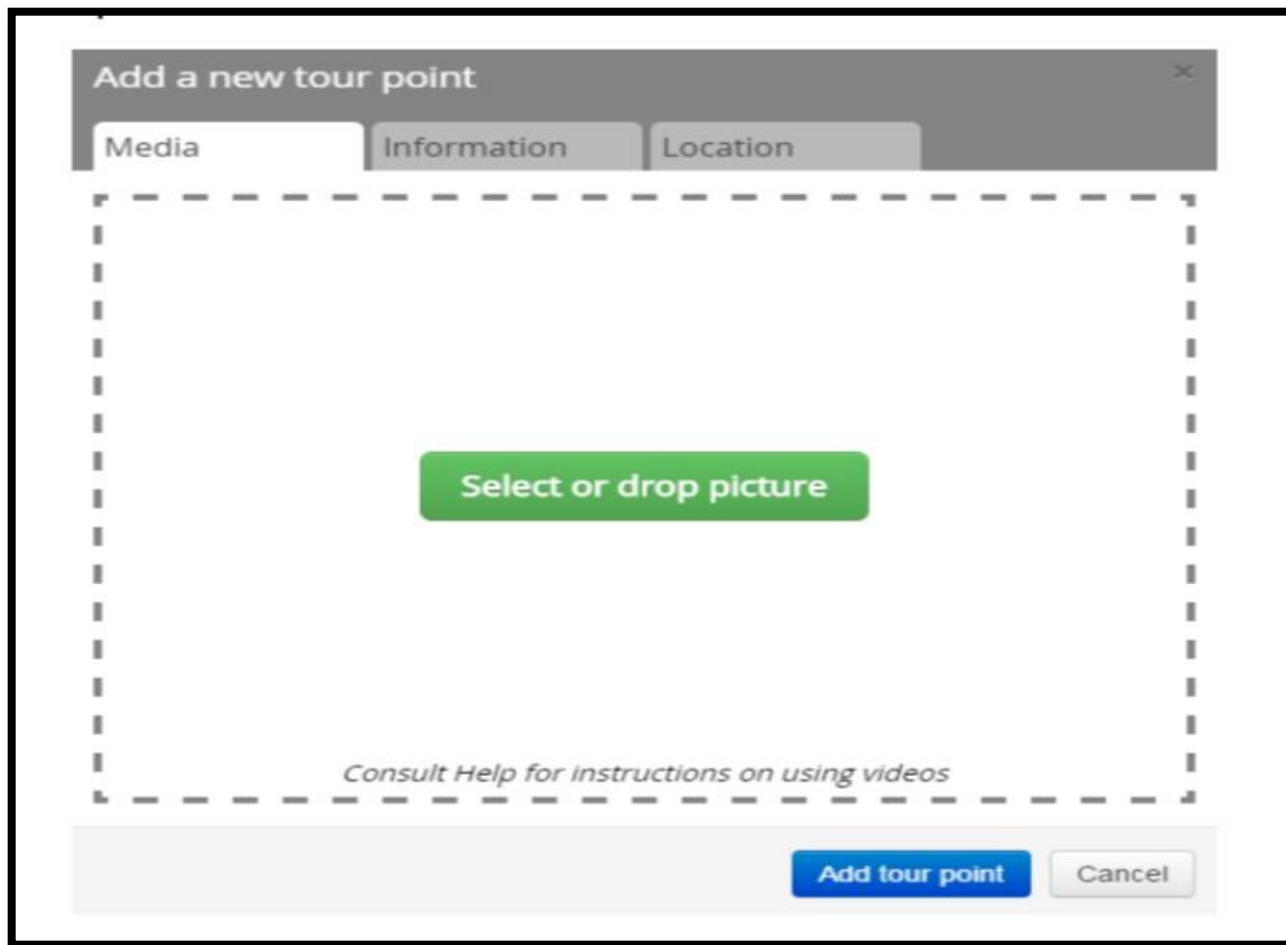
How to create a Story Maps on ArcGIS online

10. Click **Add**



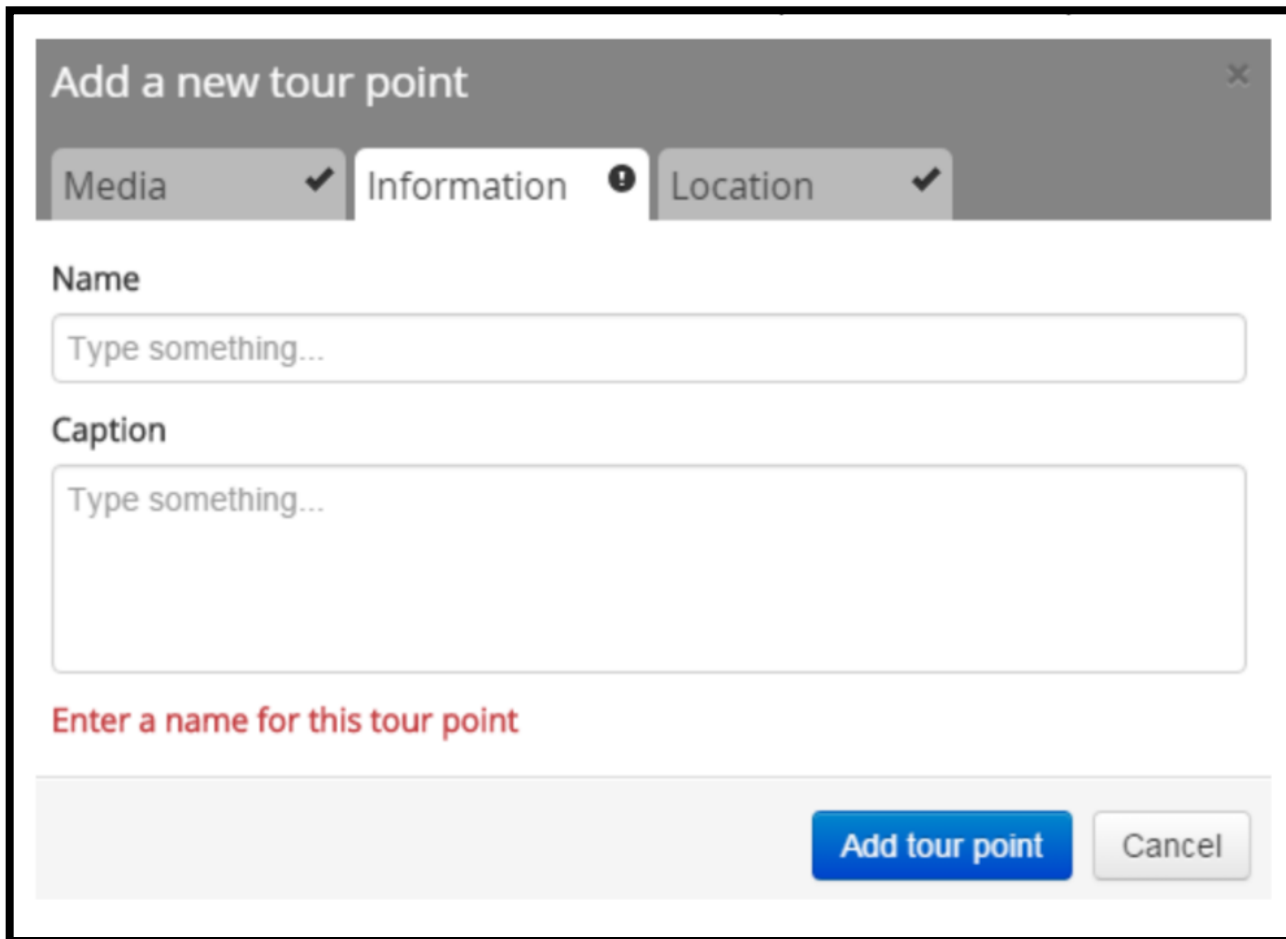
How to create a Story Maps on ArcGIS online

11. On the **Media tab**, click **Select or Drop picture** to upload your images to the tour point.

A screenshot of the "Add a new tour point" dialog box in ArcGIS Online. The dialog has a title bar with a close button. Below the title bar are three tabs: "Media" (selected), "Information", and "Location". The main area of the dialog is a large dashed rectangle. Inside this rectangle is a green button labeled "Select or drop picture". At the bottom of the dashed rectangle, there is a link that says "Consult Help for instructions on using videos". At the bottom of the dialog box, there are two buttons: "Add tour point" (blue) and "Cancel" (grey).

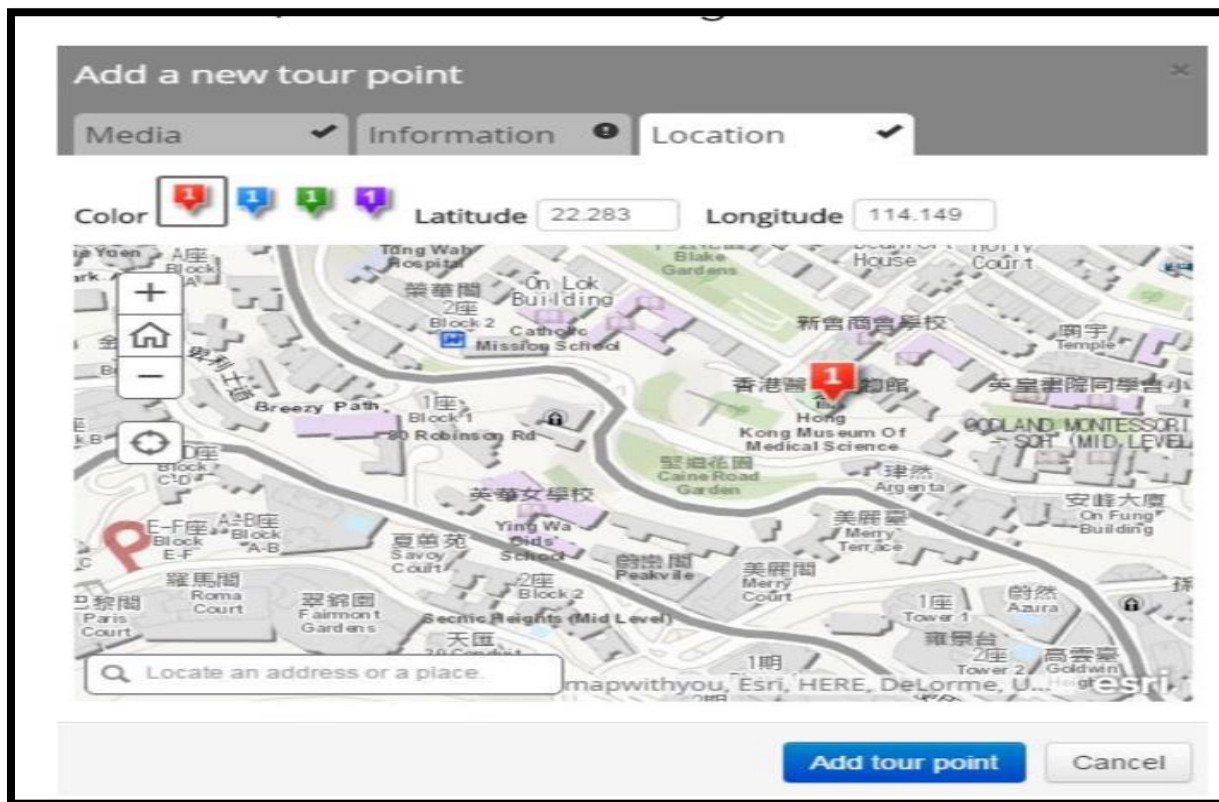
How to create a Story Maps on ArcGIS online

12. On the **information tab**, enter **name** and **caption** for the tour point.

A screenshot of the "Add a new tour point" dialog box in ArcGIS Online. The dialog has a title bar with a close button (X). Below the title bar are three tabs: "Media" (with a checkmark), "Information" (with an information icon and a checkmark), and "Location" (with a checkmark). The "Information" tab is active. It contains two text input fields: "Name" and "Caption", both with placeholder text "Type something...". Below these fields is a red text prompt: "Enter a name for this tour point". At the bottom right are two buttons: "Add tour point" (blue) and "Cancel" (grey).

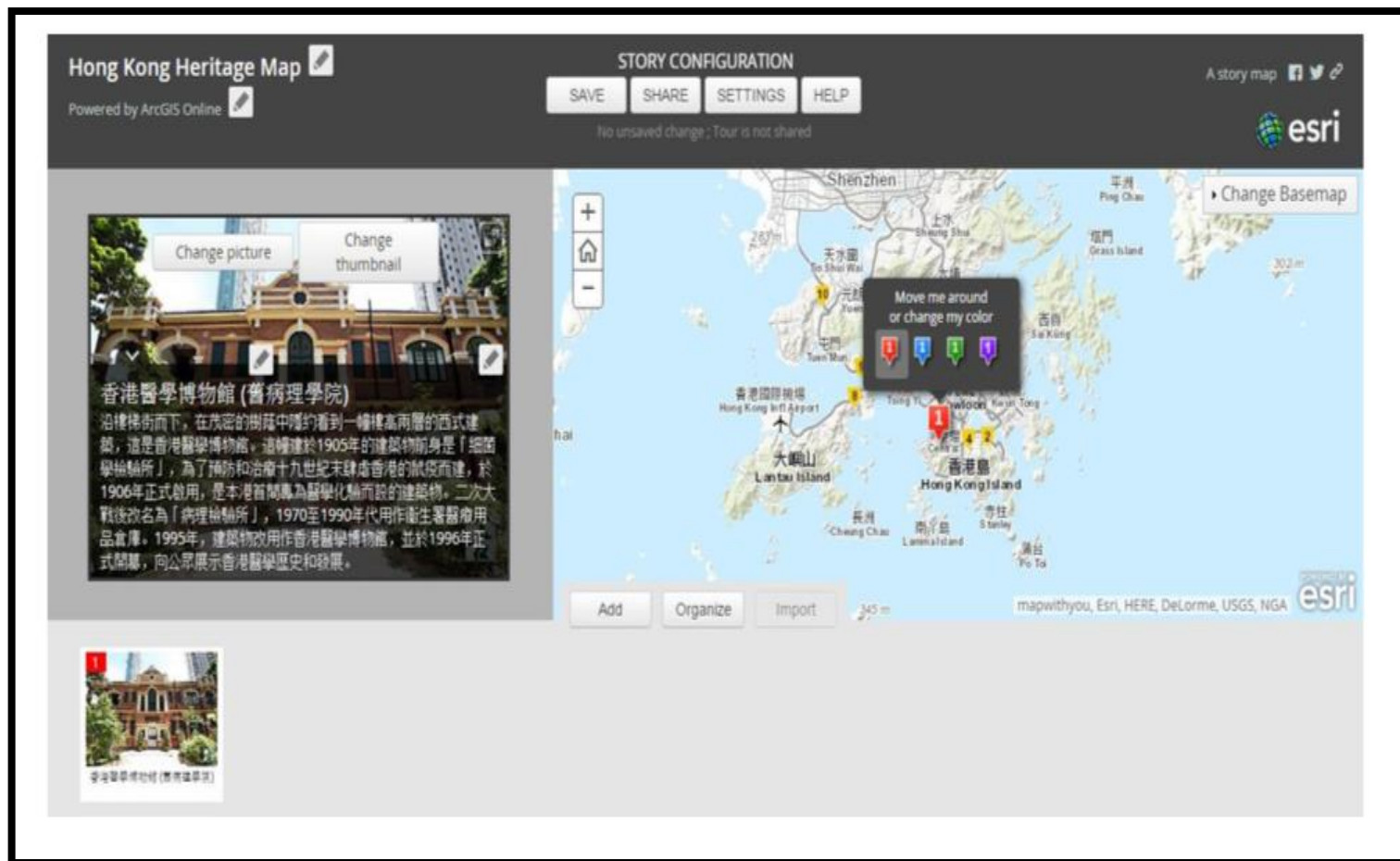
How to create a Story Maps on ArcGIS online

13. On the **Location tab**, define the location of the tour point. If you are uploaded a **geotagged images**, the location will be extracted from the photo. Otherwise, the location of images have to define manually.



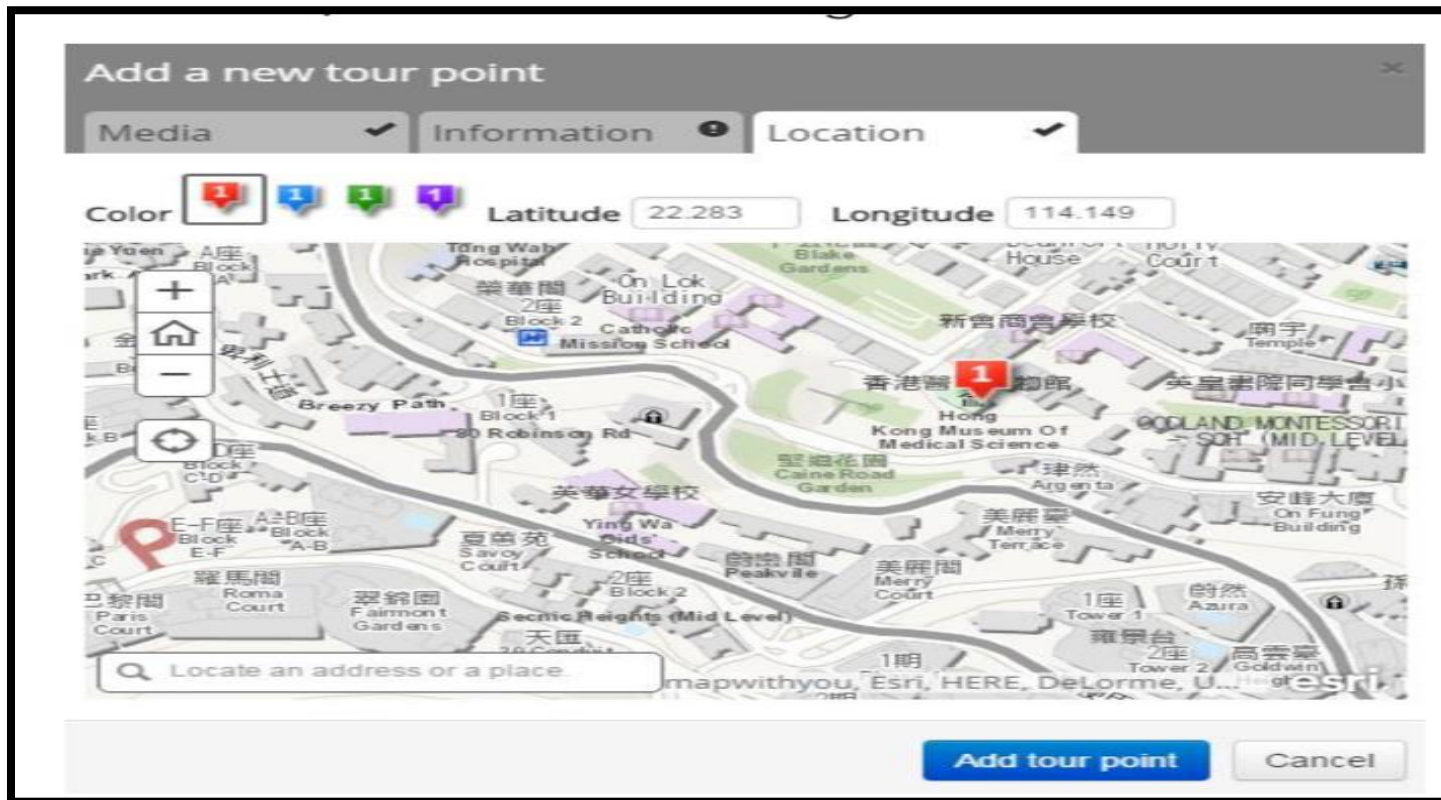
How to create a Story Maps on ArcGIS online

14. The final story map would look like below.



How to create a Story Maps on ArcGIS online

15. Repeat Steps, to add another map tour point.



**Get FREE
ArcGIS Online
School Account**

<http://esrichina.hk/mil/>



3. 討論運用GIS及相關IT資源的教學範例， 以促進與氣候變化課題有關的探究式學習



討論運用GIS及相關 資訊科技資源的教學範例

	Primary Curriculum	Secondary Curriculum
Cross KLA examples	Climate change, General Studies, Chinese/English Languages	Climate change, Geography, Science, Liberal Studies, Chinese/English Languages
Expected learning Outcomes related to IBL	Self-motivation, Social Inquiry	Social Inquiry, Scientific Inquiry
Learning Approach	Exploratory, student-centred, enjoyable, gamified learning experience	Self-directed, inquiry-based, student-centred, adventurous, gamified learning experience
Teachers' role	Instructional and catering	As facilitator and motivator

4. 習作討論



習作

- 設計小學策略性運用資訊科技教學活動以促進有關氣候變化的探究式學習 教學活動
- 包含 Stripling Model of Inquiry 元素
 - Connect / Wonder/ Investigate / Construct/ Express/ Reflect
- 可嘗試加入 GIS使用於教學設計
- 可參考習作示例
- 繳交日期：2018/2/9

習作參考

AA 班：

<https://goo.gl/CitKMh>



總結：第一節

1. 介紹 氣候變化問題 及相關課程的探究式學習教學應用
2. 介紹 GIS 及 資訊科技相關資源
(例如：Esri Story Maps、Esri ArcGIS Online、Google Maps、Google Earth、EduVenture等)
3. 討論運用GIS及相關IT資源的教學範例，以促進與氣候變化課題有關的探究式學習
4. 作業簡介

預告：第二節

1. 作業討論及意見回饋
2. 介紹數碼傳感器和便攜式數據採集儀器，以進行有關氣候變化的探究
3. 介紹運用學習管理系統 (LMS) 和其他電子學習工具 (例如：HKEdcity VLE、Google Classroom、Google Drive、Microsoft o365等) 管理學生學習進程
4. 運用學習管理系統和電子學習工具，設計及整合探究式學習教材
5. 總結、討論及問與答環節