

香港中文大學 學習科學與科技中心
通識教育/ 地理科 探究式學習教案

教案名稱	What is happening in Hong Kong?
科目	Geography
年級	F.3
探討議題	Climate Change in Hong Kong
探討學習模式	Stripling Model of Inquiry
相關的單元	Changing climate, changing environment
相關概念	Interaction between physical and human environment

教學目標

知識方面:

- How has the climate of Hong Kong changed?
- What are the causes of the changing climate in Hong Kong?

技能方面:

- Graph interpretation
- Information analysis
- Searching relevant information from Internet
- Use GIS to construct a map showing the heat island effect

態度方面:

- Be aware of the changes in climate in our daily life
- Realise the importance of living a greener life

教學材料及用具：

iPads,

Google Earth, Google Earth Engine, FKML (kmz 工具), ArcGIS Map Overlay, Survey 123 for ArcGIS, ArcGIS Story Maps, Google My Maps, YouTube, MS Excel

教學流程			
探究過程 與模式	教學活動	學生活動/ 預期教學效果	教學工具
Connect	Climate change in Hong Kong http://www.hko.gov.hk/climate_change http://www.hko.gov.hk/cis/statistic/vhotday_statistic.c.htm	Students explore the trend of changing climate in Hong Kong	Google Earth Engine
Wonder	Issue: Is urban heat island effect occurring in Hong Kong? - Change of built-up areas in Hong Kong since 1980s http://earthengine.google.com/timelapse - Introduce the concept about urban heat island effect Flipped classroom: - Complete a worksheet about urban heat island effect with reference of the video in YouTube https://www.youtube.com/watch?v=sKnsRAT2Bvk	Students explore the relationship between urban development and climate change	Google Earth Engine

Investigate	<p>Field work – data collection</p> <ul style="list-style-type: none"> • Divide students into 2 groups. One group will be collecting data in an urban district, while another group will collect data in a rural district. Data should be collected on the same time • Students will collect the following data <ul style="list-style-type: none"> ○ Air temperature ○ Relative humidity ○ Wind speed ○ Building height ○ Nature of land surface ○ Air pollution • Photos should be taken on the site to show the environment 	Completing Survey 123 for ArcGIS by collecting the field data	Equipment for collecting data, Survey 123 for ArcGIS
Construct	Construct a Story Map to show the locations of the sites which should include photos and appropriate statistical graphs to show the difference in the weather conditions of the two sites	Students should be able to summarise their findings by different statistical maps. They should also be able to insert the data on the Story Maps	ArcGIS Story Maps, MS Excel
Express	<p>Group presentation:</p> <p>Discussion on the reasons for the differences and complete a group report by using information from http://www.hko.gov.hk/climate_change/urbanization_e.htm</p>	Presentation with GIS	ArcGIS Story Maps or Google My Maps
Reflect	Summarising the learning outcomes and ask students to suggest ways to alleviate the urban heat island effect.		

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