資訊科技教育教學法系列:
在中學有效運用流動電腦裝置進行電子學習(修訂) EI0020220264
第二節

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

請先下載

步驟一：將你手機連接 WIFI NETWORK

步驟二：下載 YOUTUBE APP

步驟三：下載 EduventureVR

步驟四：下載 Eduventure（IOS)

步驟四：下載以下 VR/ AR APPs（未必兼容所有手機）

Google StreetView

Google Arts & Culture

Within - VR (Virtual Reality)

Google Cardboard

中學 R8AA 班

第一節:
日期: 2022/06/07 (星期二)
時間: 18:30 - 21:30
地點: 香港中文大學崇基校園信和樓614室

第二節:
日期: 2022/06/14 (星期二)
時間: 18:30 - 21:30
地點: 香港中文大學崇基校園信和樓614室

簡介

文可為 MAN HO WAI, WALLACE

BSSc. (HON.) / PGDE (DIST.)/ MEd, CUHK

樂善堂余近卿中學副校長

教育局資訊科技教育組

香港中文大學 學習科學與科技中心 顧問

香港大學電子學習發展實驗室 導師

香港教育大學「卓越教學發展中心」顧問

澳門教青局 資訊科技教育 導師

課程目標:

本課程旨在介紹基本的電子學習應用程式和其功能，以有效運用流動電腦裝置進行電子學習。

活動詳情:

1. 概述常用的流動電腦裝置;
2. 了解流動電腦裝置用於學與教的基本操作;
3. 用戶身份驗證和帳戶管理;
4. 運用EdPuzzle進行翻轉課室;
5. 運用Google Classroom促進電子學習;
6. 介紹 擴增實境 (AR) 虛擬實境 (VR)增強課堂體驗;及
7. 運用EduVenture VR進行探究式學習。

Objectives:

This course aims at:

equipping teachers with the necessary knowledge and skills in the effective and smooth operations of mobile computer devices in lessons by introducing the essential applications and functions for e-learning.

This course enables participants to:

(a) understand the types of popular mobile computer devices by operating systems (e.g. iOS, Android and Windows)

(b) understand the operations of the built-in functions of mobile computer devices in lessons, e.g. searching and opening an app, connecting to WiFi access point / hotspot, screen mirroring to TV / projector, screen capturing and recording, etc

(c) understand the major differences of applications with and without student accounts and understand the use of single sign-on (SSO)

(d) understand the operation of simple applications to conduct e-Learning activities without student accounts e.g Plickers, Kahoot and Quizizz (instant response and assessment), Poll Everywhere (polling and brain-storming);

This course enables participants to:

(e) understand the operation of applications with student accounts, e.g Quizlet (online quiz), Coggle (mind mapping), Class Dojo (classroom community);

(f) understand the features of some other applications / platforms for specific purposes, e.g Google Drive and related applications (online collaboration), HP Reveal (augmented reality), EdPuzzle (flipped video) and Google Classroom (integrated learning management system);

(g) design and create simple e-Learning activities using the e-learning applications for specific learning objectives, e.g to enhance students' learning motivation and engagement, to conduct assessment and provide instant feedback, to enhance class interactions, to promote collaborative learning and to facilitate students to master abstract concepts

Session 1

1. Overview of Mainstream Mobile Computer Devices
2. Understanding Basic Operations of Mobile Computer Devices for Learning and Teaching
3. Using Google Classroom to Facilitate e-Learning
4. Conclusion and Discussion of Course Assignment

Session 2

1. Assignments Feedback
2. Digital data logger for PBL
3. User Authentication and Account Management
4. Using EdPuzzle for Flipped Classroom Learning
5. Using AR/ VR to Enhance Classroom Experience
6. Using EduVenture® X and EduVenture® VR in Inquiry-based Learning
7. Conclusion and Discussion

1. 外置數據收集裝置

外置數據收集裝置

Flow Rate Sensor

The Flow Rate Sensor measures the velocity of water in studying the discharge, flow patterns, and sediment transport of a stream or river.

外置數據收集裝置

Optical DO

The Vernier Optical DO Probe makes it easy to measure the dissolved oxygen concentration in water.

Perfect for the field or for the laboratory, this plug-and-play probe requires no calibration, no filling solution, no warm-up time, and no stirring.

外置數據收集裝置

pH Sensor

Our general-purpose pH Sensor can be used across disciplines, including chemistry, biology, middle school science, and environmental science.

外置數據收集裝置

Nitrate Ion-Selective Electrode

The Nitrate Ion-Selective Electrode (ISE) can be used to measure the concentration of Nitrate (NO3–) in aqueous samples.

2. User Authentication and Account Management
用戶身份驗證和帳戶管理

用戶身份驗證和帳戶管理

facebook

EDpuzzle
Make any video your lesson

Google for Education

Office 365

香港教育城
HKedCity

moodle

用戶身份驗證和帳戶管理

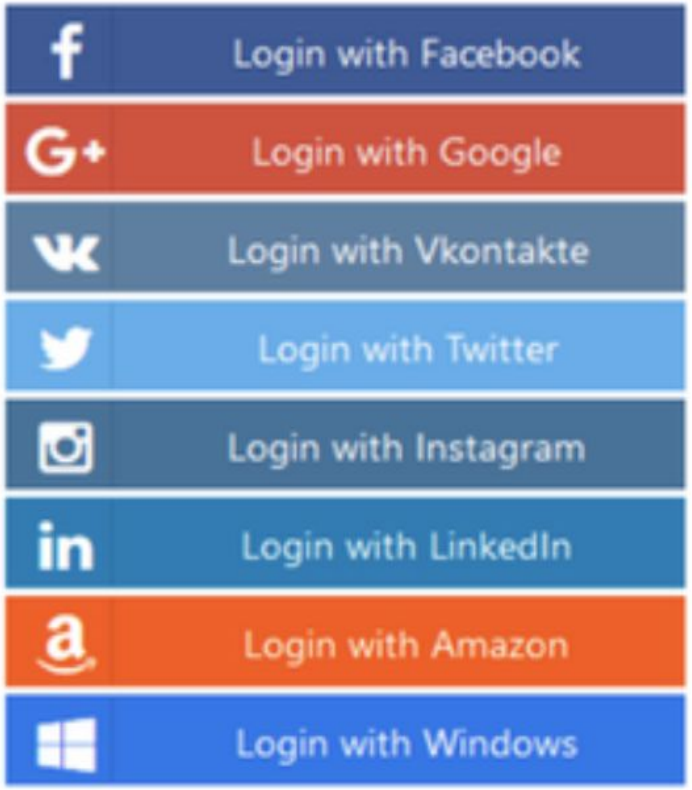
Current Authentication

Authenticate to multiple systems with Many username and Many password

用戶身份驗證和帳戶管理

Single Sign On

One Credential Authenticate to multiple systems with one username and one password



用戶身份驗證和帳戶管理

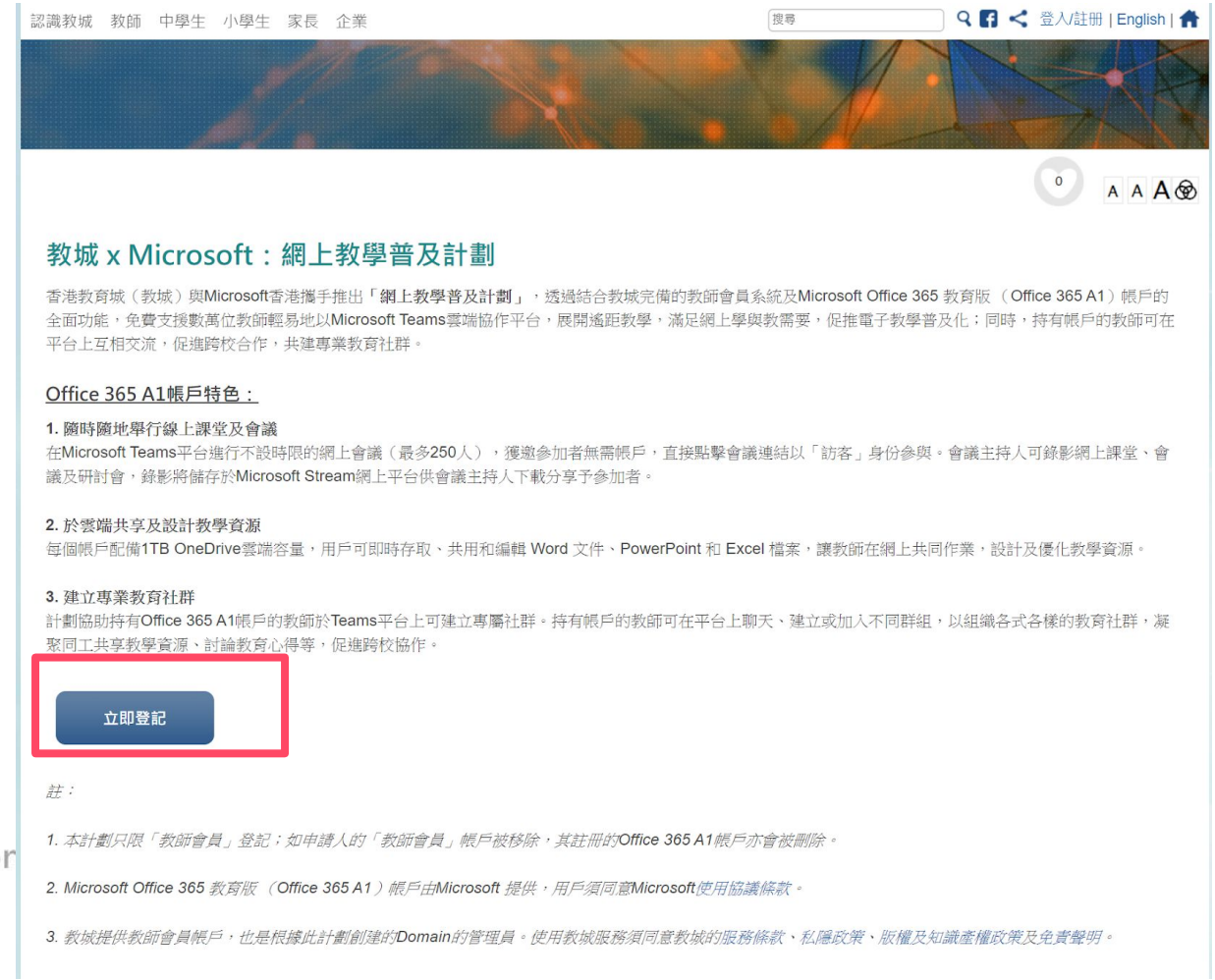
https://www.hkedcity.net/home/

用戶身份驗證和帳戶管理

香港教育城 HKedCity

https://www.hkedcity.net/home/

https://www.hkedcity.net/o365



1

香港教育城 HKedCity

以教城教師帳戶登入

會員登入:

電郵 / 教城帳戶

輸入密碼

保持登入 顯示密碼

忘記密碼 | 忘記帳戶

登入

或以其他帳戶登入:

加入成為會員:

註冊

2

香港教育城 HKedCity

教城 x Microsoft : 網上教學普及計劃

申請Microsoft Office 365 教育版(A1) 帳戶

登入帳號 [1]

dhn055118 @school.edcity.hk

可更改登入名稱

密碼 [2]

確認密碼

設定個人密碼、再確認

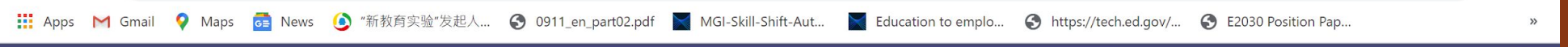
確認

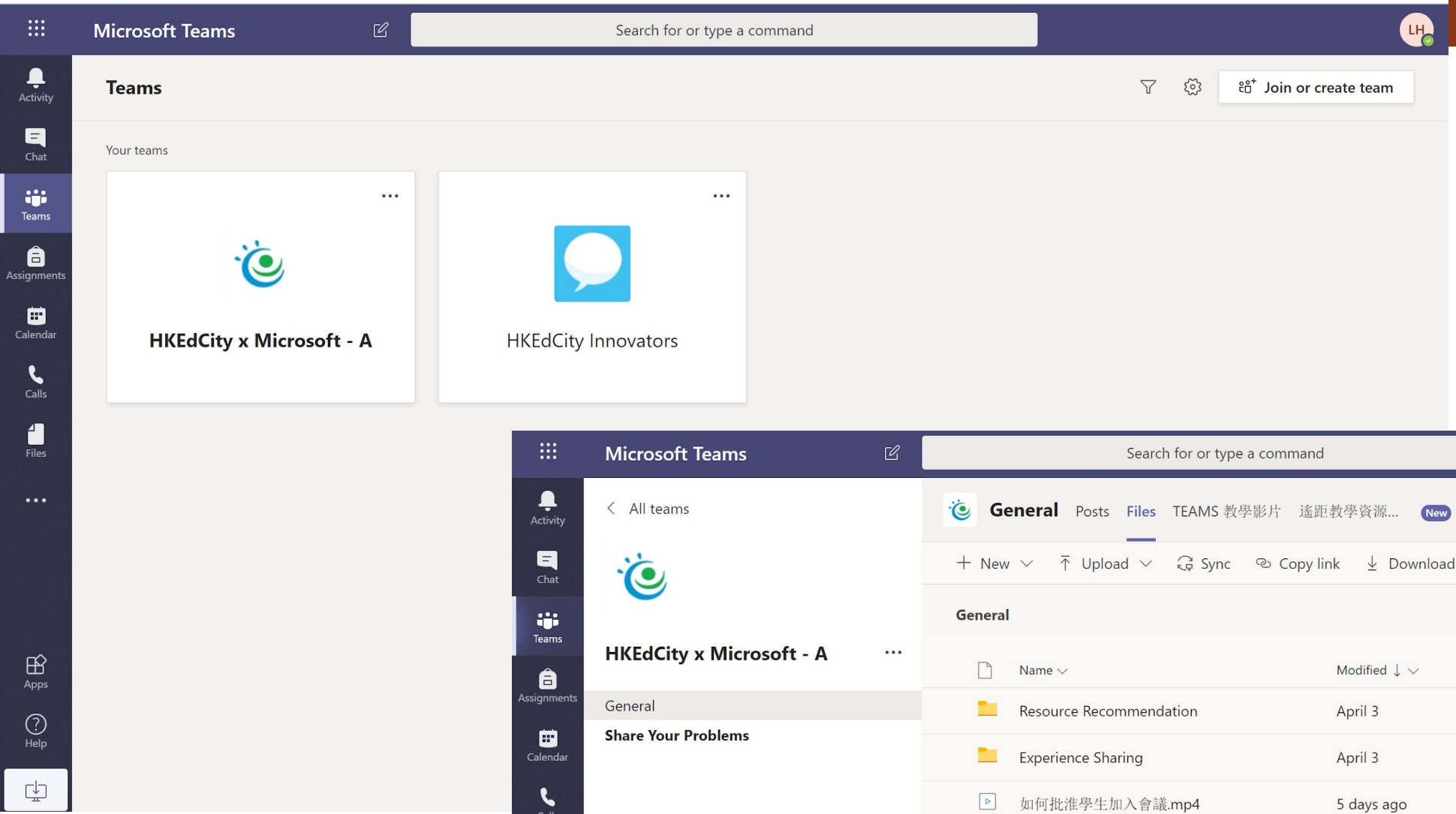
註

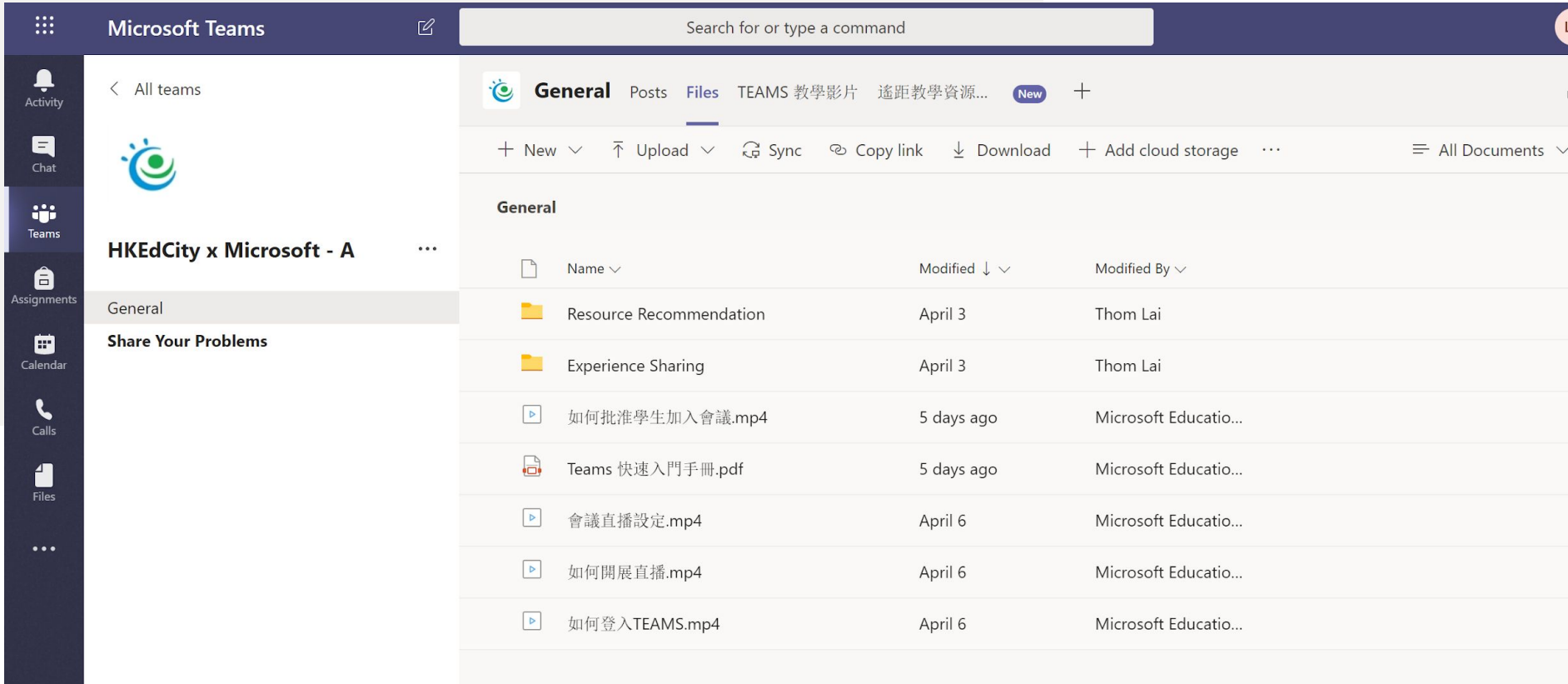
1. 登入帳號：申請人可選擇以教城帳號（系統自動填寫）或自訂帳號開戶。自訂登入帳號須由5至15個字元組成，可包括大寫字母、小寫字母、數字及 / 或符號「_」。
2. 密碼：包含至少8個字元，以及下列任何三項：大寫字母、小寫字母、數字或符號。

Centre

The Chinese University of Hong Kong


Apps
Gmail
Maps
News
"新教育实验"发起人...
0911_en_part02.pdf
MGI-Skill-Shift-Aut...
Education to emplo...
https://tech.ed.gov/...
E2030 Position Pap...


Microsoft Teams
Search for or type a command
LH
Activity
Chat
Teams
Assignments
Calendar
Calls
Files
Apps
Help
Teams
Join or create team
Your teams
HKEdCity x Microsoft - A
HKEdCity Innovators


Microsoft Teams
Search for or type a command
Activity
Chat
Teams
Assignments
Calendar
Calls
Files
All teams
HKEdCity x Microsoft - A
General
Share Your Problems
General
Posts
Files
TEAMS 教學影片
遙距教學資源...
New
New
Upload
Sync
Copy link
Download
Add cloud storage
All Documents
General
Name
Modified
Modified By
Resource Recommendation
April 3
Thom Lai
Experience Sharing
April 3
Thom Lai
如何批准學生加入會議.mp4
5 days ago
Microsoft Educatio...
Teams 快速入門手冊.pdf
5 days ago
Microsoft Educatio...
會議直播設定.mp4
April 6
Microsoft Educatio...
如何開展直播.mp4
April 6
Microsoft Educatio...
如何登入TEAMS.mp4
April 6
Microsoft Educatio...

Microsoft Teams

Search for or type a command

LH

Activity

Chat

Teams

Assignments

Calendar

Calls

Files

Apps

Help

Back

Join or create a team

Search teams

Create a team

Create team

Join a team with a code

Enter code

Got a code to join a team? Enter it above.

PE

Physical Education

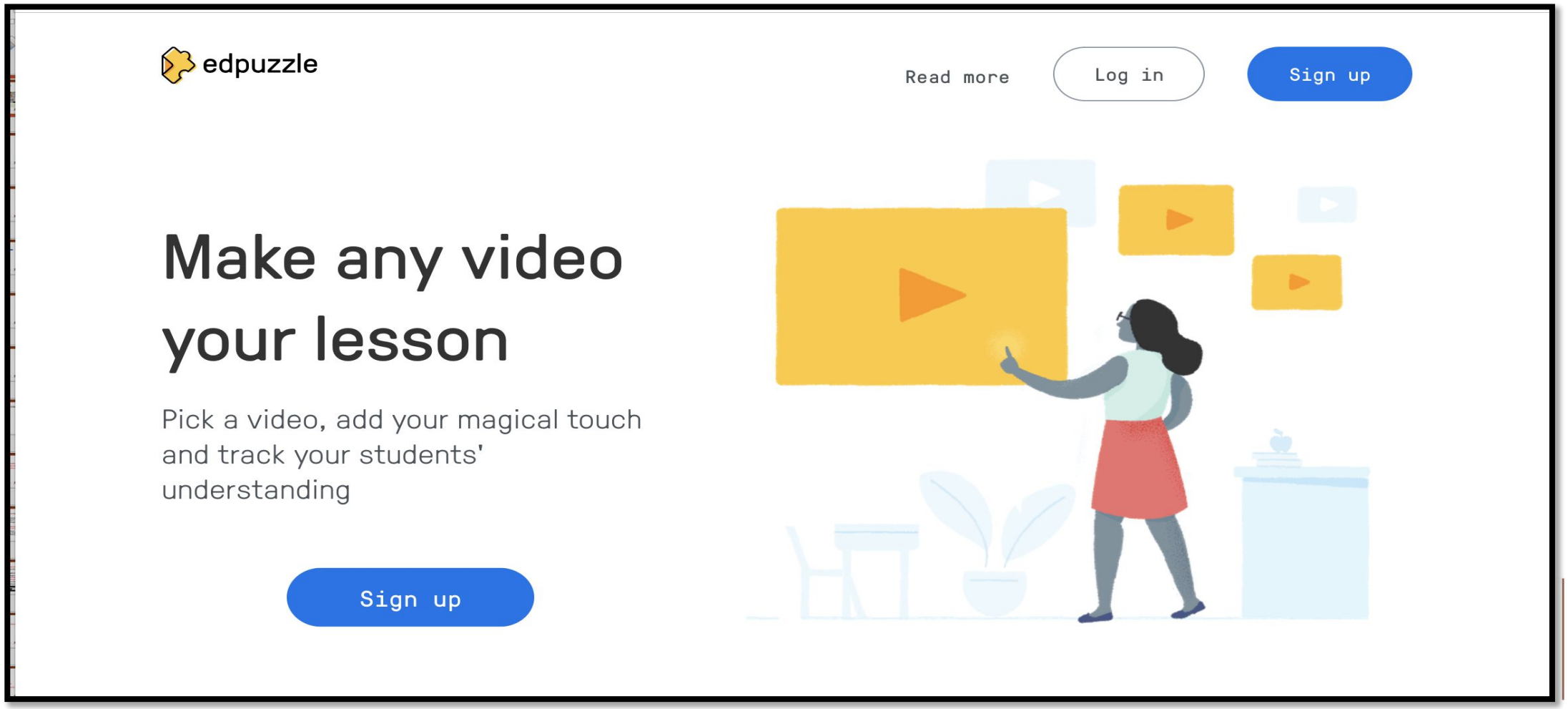
Public

感謝教城與MICROSOFT的信任，經過多方專家背後的努力，於6/4/2020讓有關平...

3. 運用 EdPuzzle 進行翻轉課室

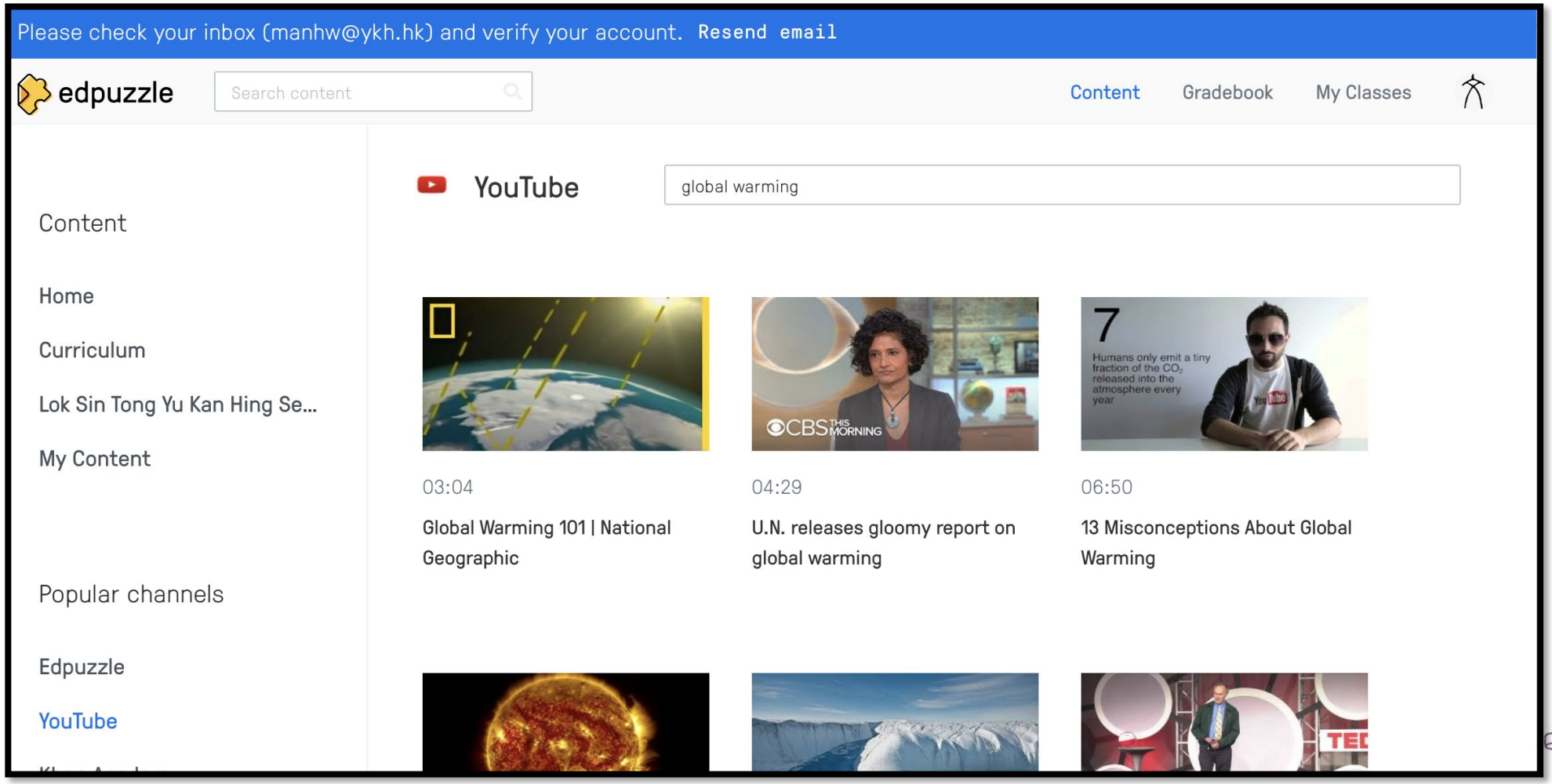
運用EdPuzzle進行翻轉課室

https://edpuzzle.com/



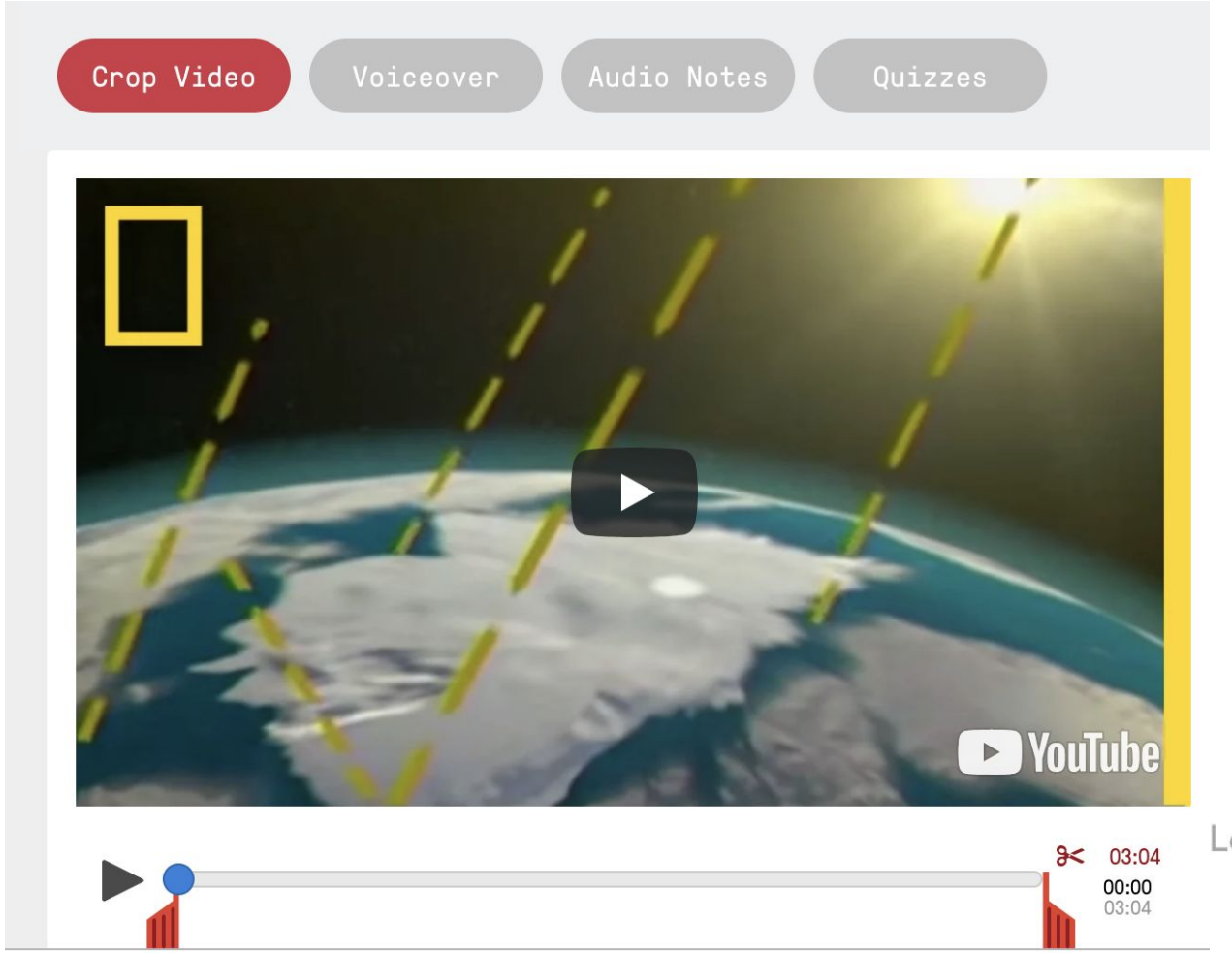
運用EdPuzzle進行翻轉課室

https://edpuzzle.com/



運用EdPuzzle進行翻轉課室

https://edpuzzle.com/



Why crop a video?

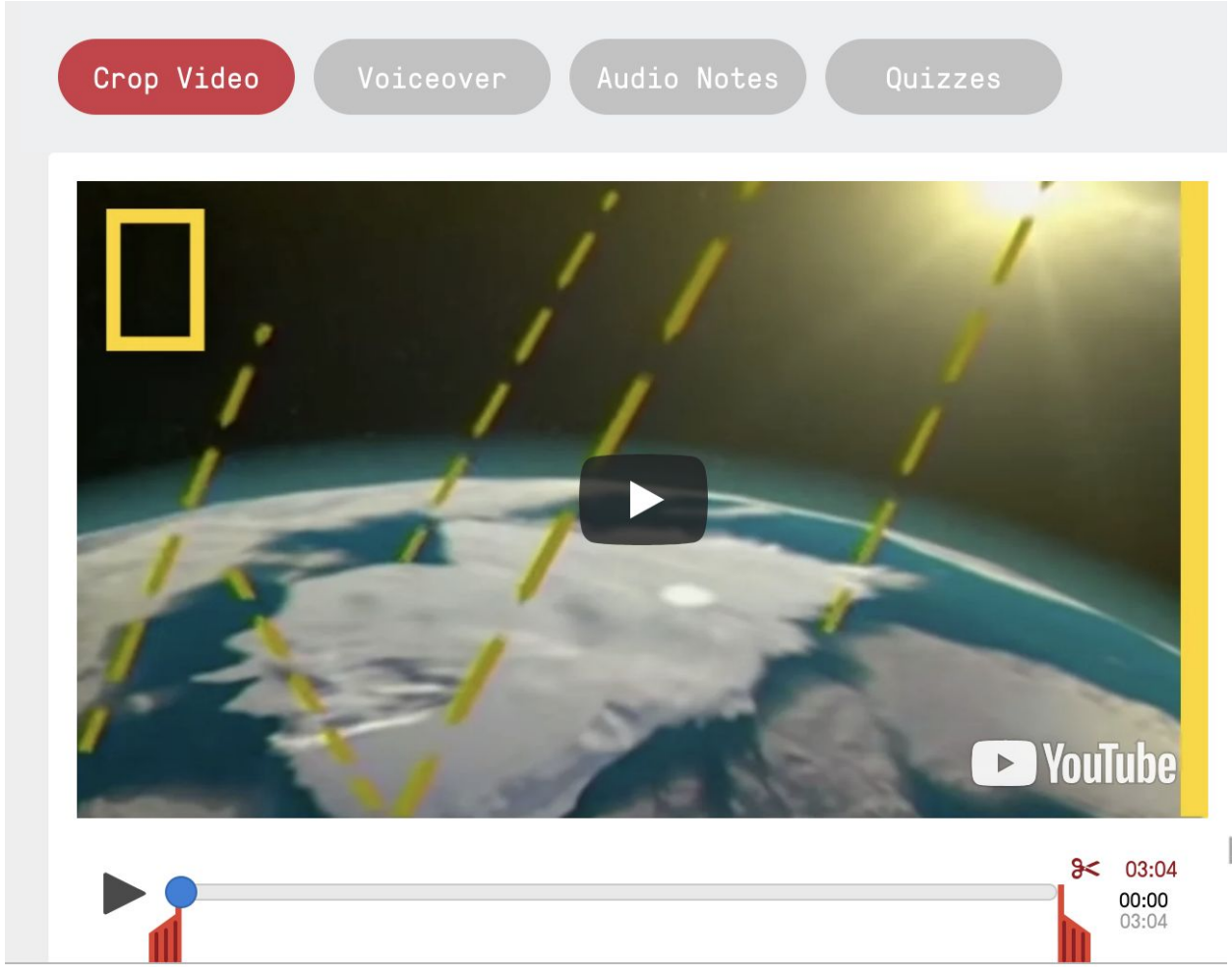
Save yourself and your students' time - crop a video down to just the important stuff.

Why record voiceover?

Explain a concept the way you would in class - in your own style or maybe in another language.

運用EdPuzzle進行翻轉課室

https://edpuzzle.com/



Why record audio notes?

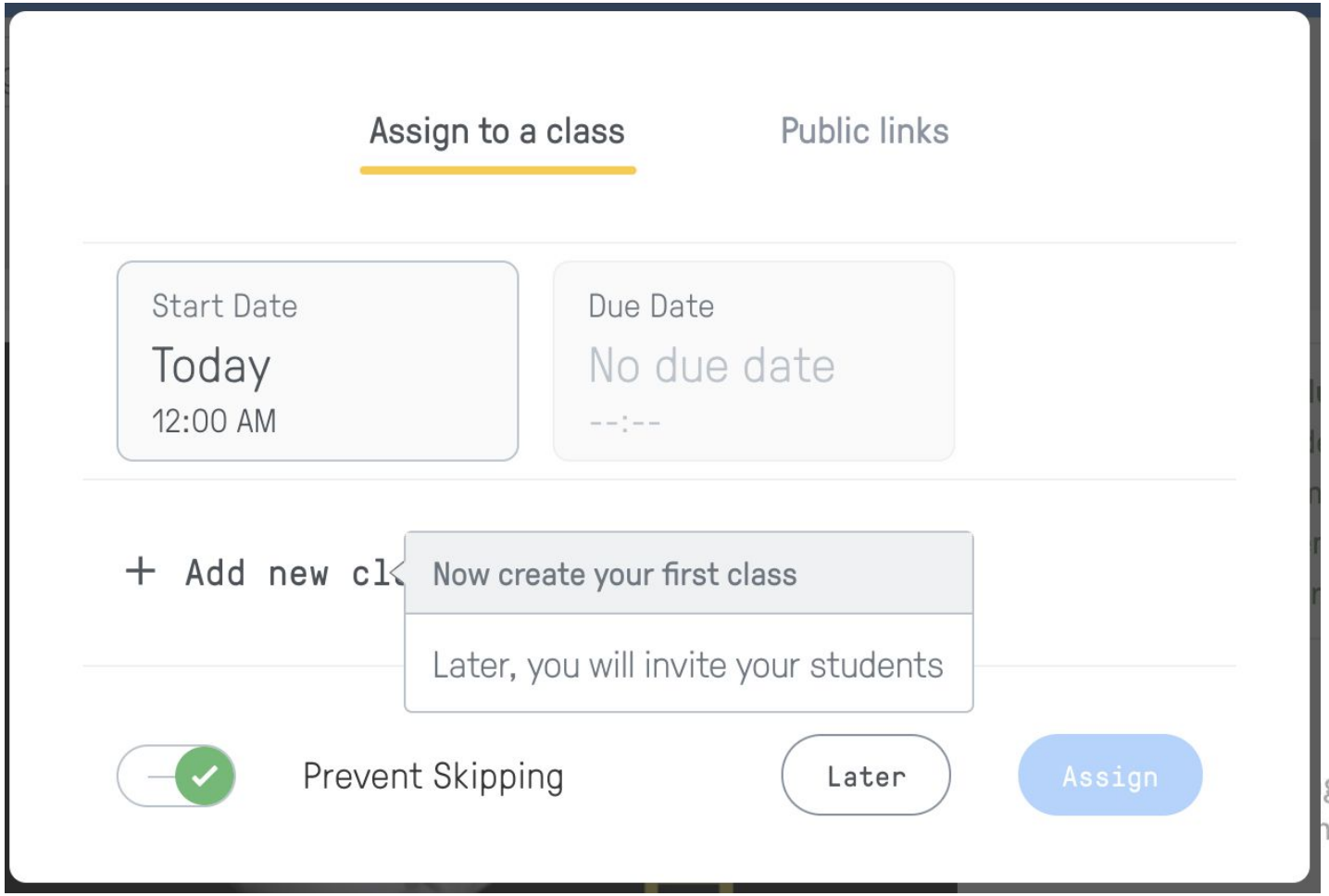
Get your students' attention - pause the video for an introductory comment, to explain a concept in more detail, or just to make sure they're not sleeping.

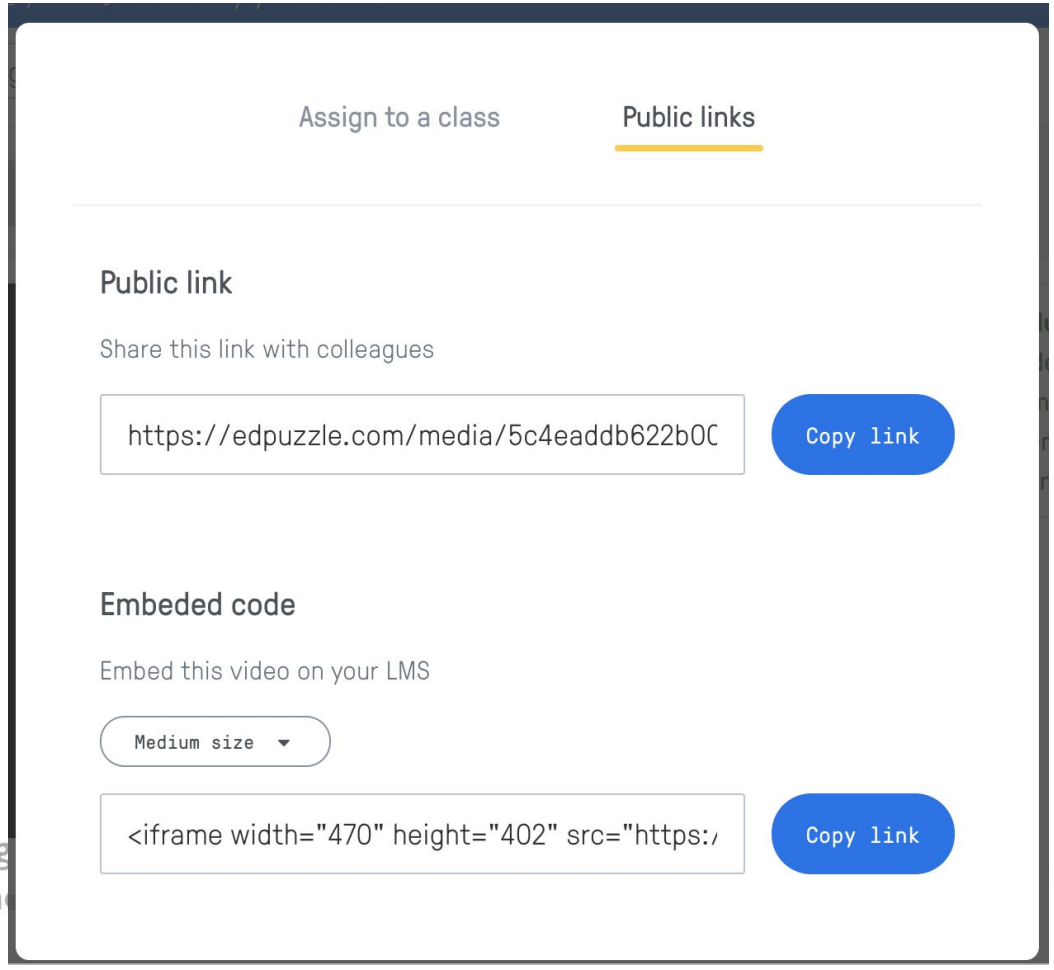
Why add quizzes during the video?

Make sure they understand - include formative assessment to check for student comprehension and review results in Gradebook.

運用EdPuzzle進行翻轉課室

https://edpuzzle.com/

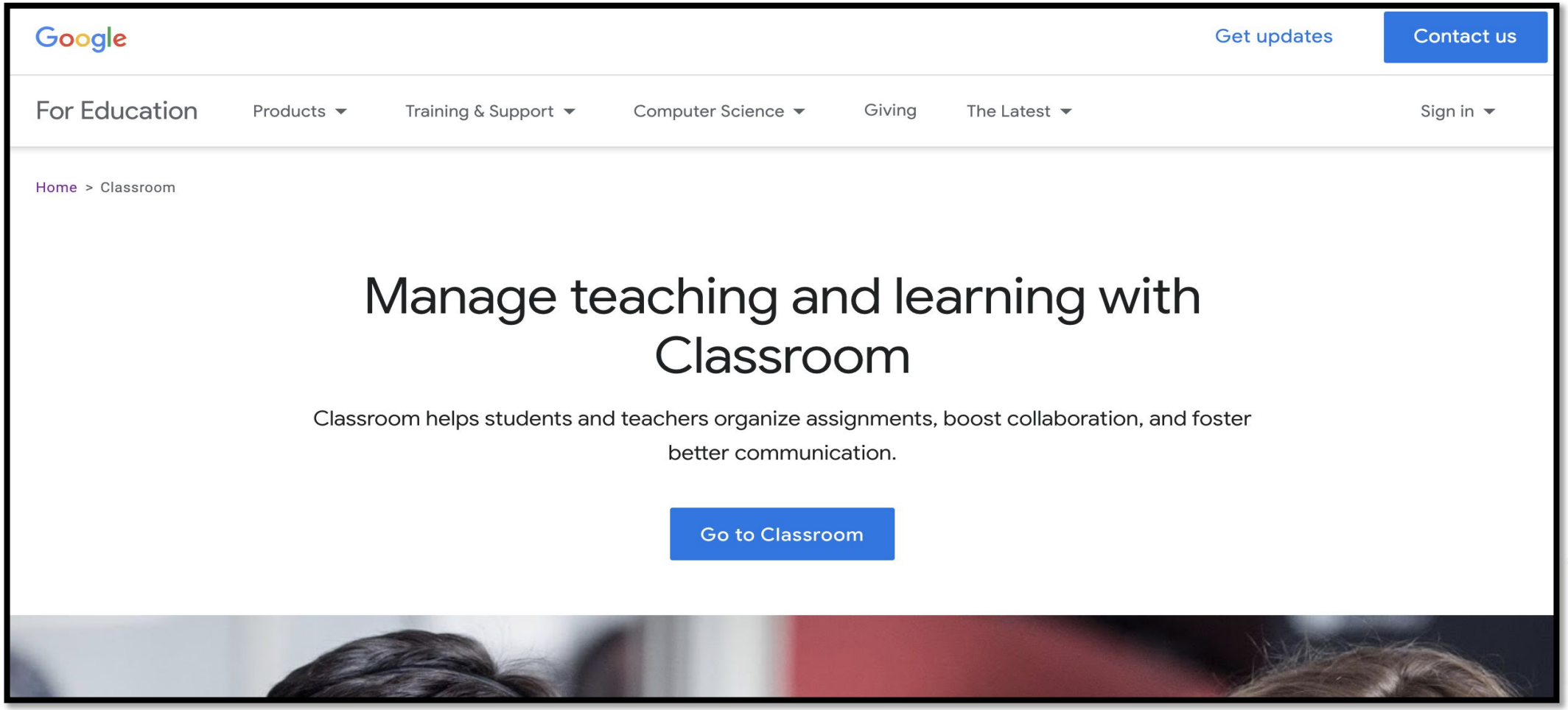




4. 運用Google Classroom 促進電子學習

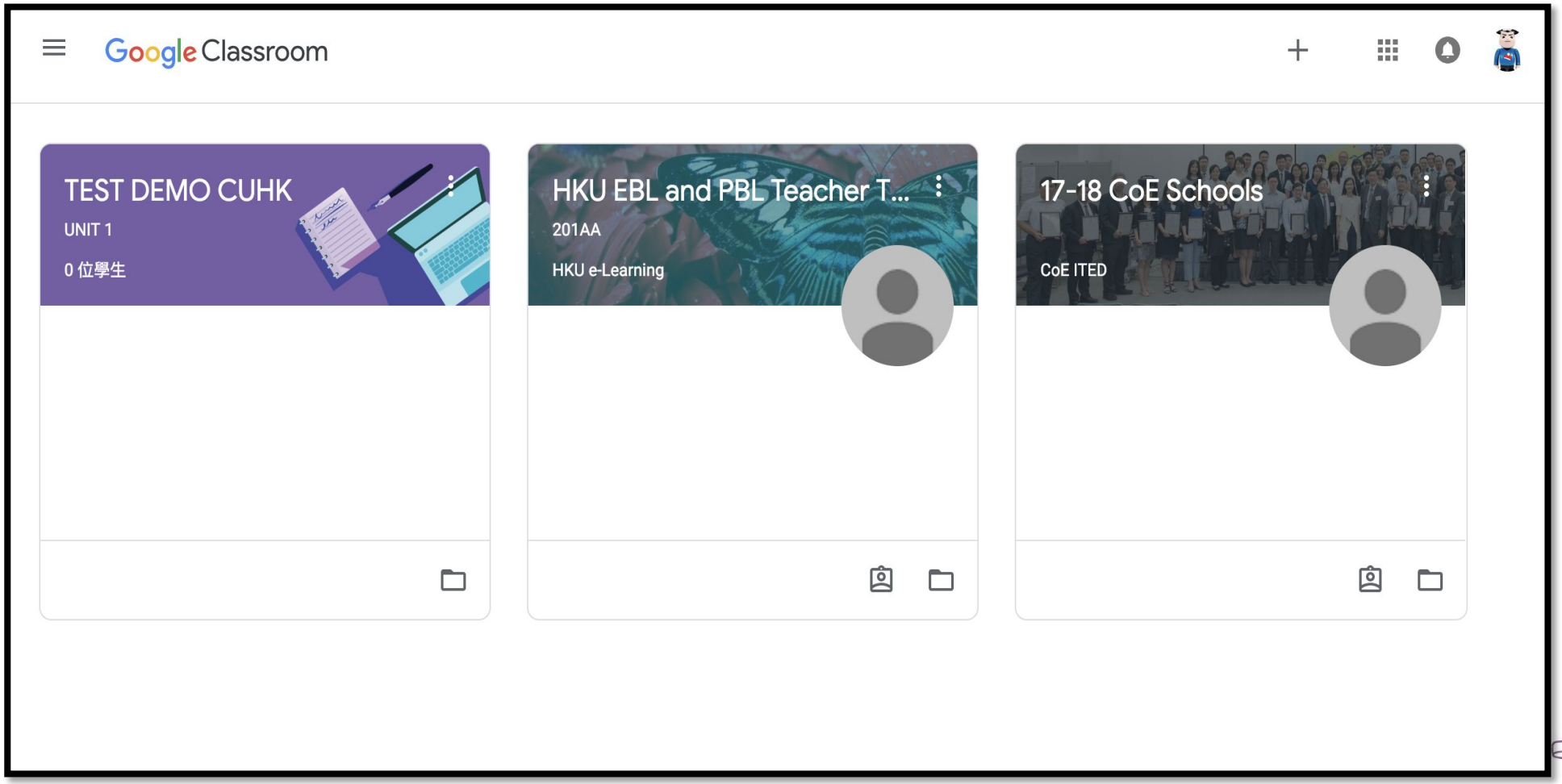
運用Google Classroom促進電子學習

https://classroom.google.com/



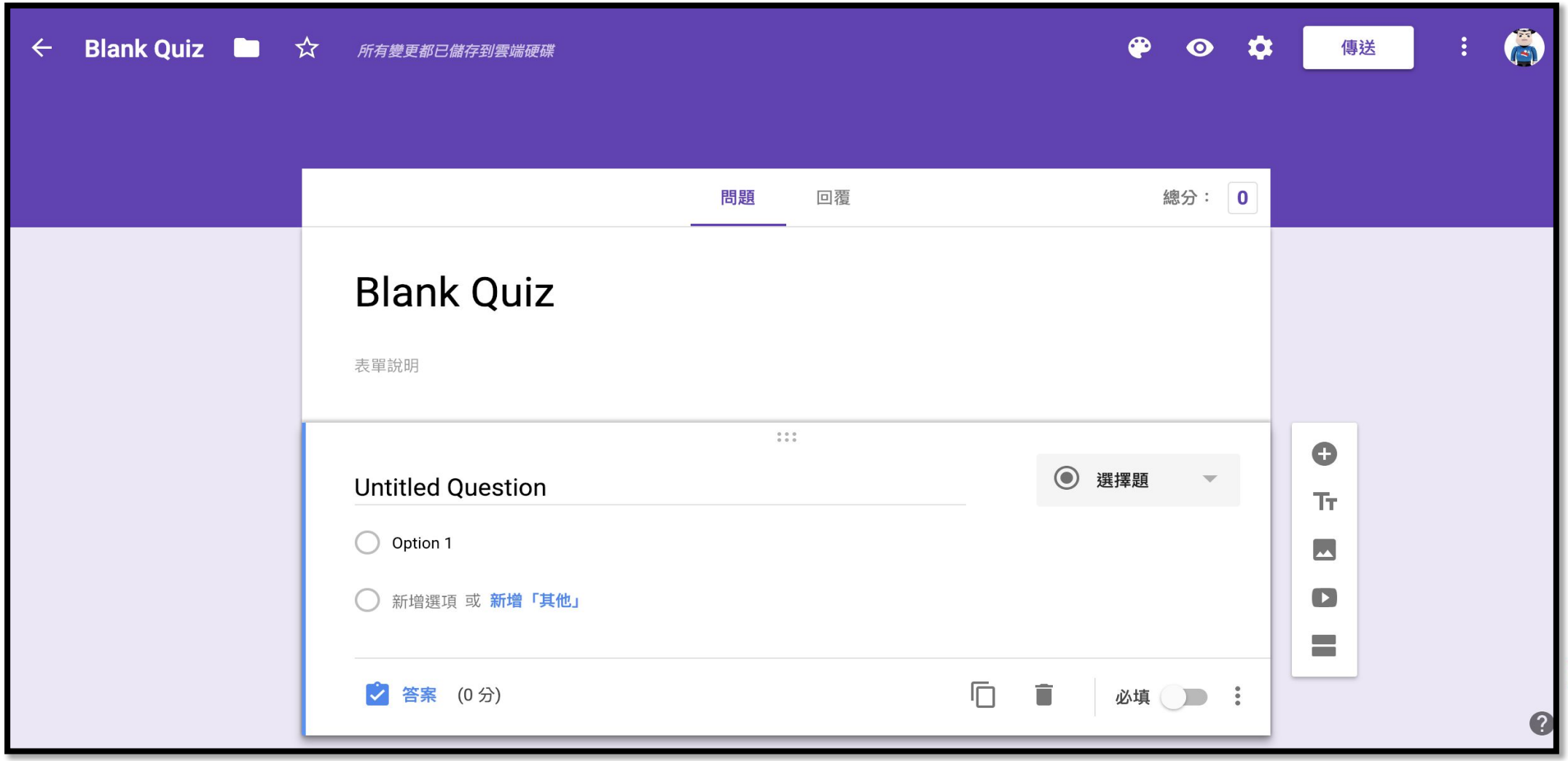
運用Google Classroom促進電子學習

https://classroom.google.com/



運用Google Classroom促進電子學習

Quiz：Google Form



運用Google Classroom促進電子學習

- Google Drive
  https://www.google.com/drive/

- Google Docs
  https://www.google.com/docs/about/

- Google Forms
  https://www.google.com/forms/about/

運用Google Classroom促進電子學習

https://support.google.com/edu/classroom#topic=6020277

運用Google Applications 促進 VR 電子學習

- Google Maps
  https://www.google.com/maps

- Google Earth
  https://www.google.com/intl/zh-HK/earth/

- Google Street View
  https://www.google.com/streetview/

運用Google Applications 促進 VR 電子學習

- Google Art and Culture https://artsandculture.google.c

- Google Expedition
  https://edu.google.com/products/vr-ar/expeditions/

5. 通過擴增實境 (AR) / 虛擬實境 (VR) 增強課堂體驗

虛擬實境 (VR)於教學應用

EduVenture VR : http://vr.ev-cuhk.net/

Version 1.3.0

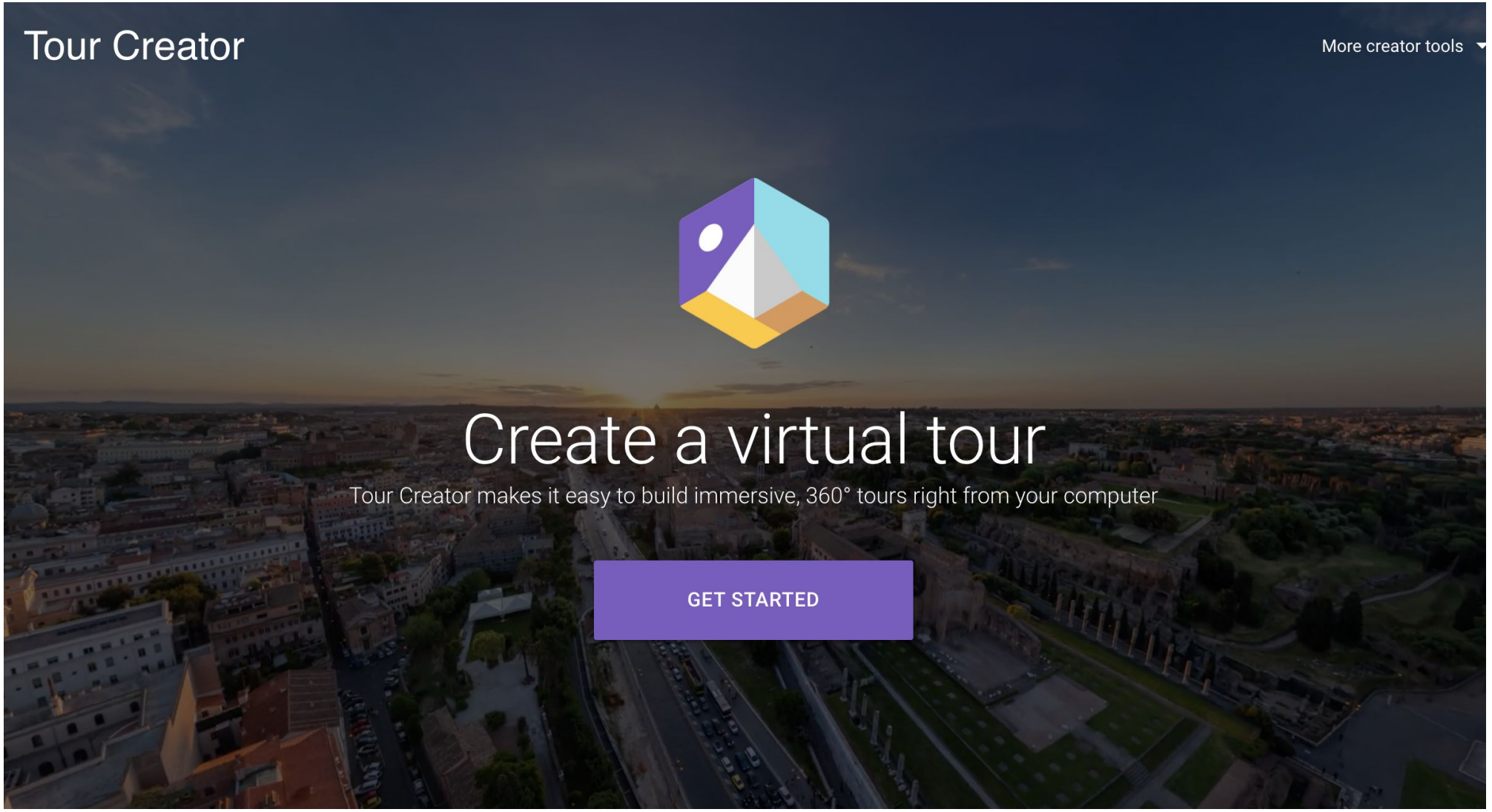
Composer

Mobile Apps
手機應用程式

The Chinese University of Hong Kong

虛擬實境 (VR)於教學應用

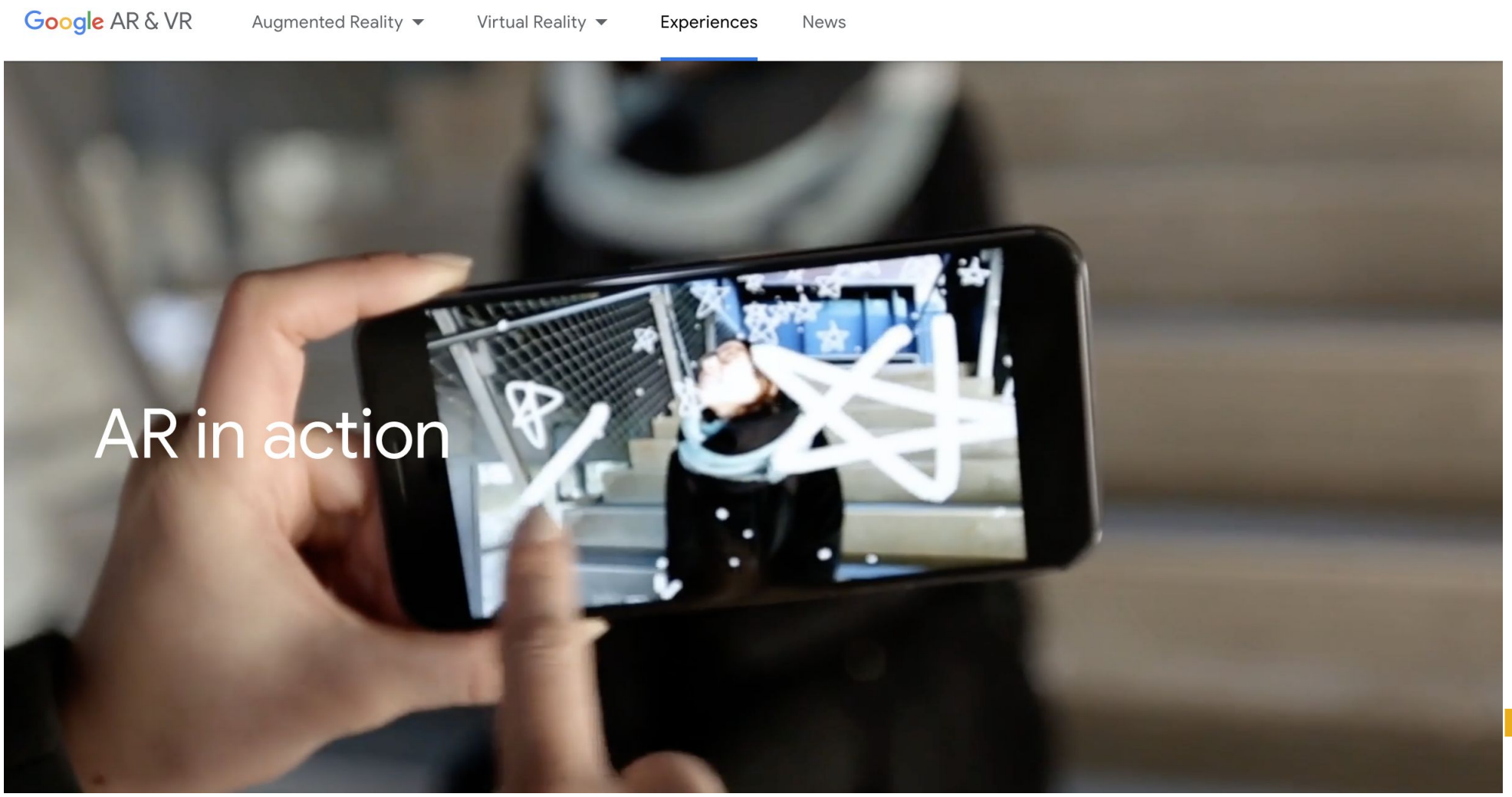
Google Tour Creator: https://poly.google.com/



擴增實境 (AR)於教學應用

Google AR & VR

https://arvr.google.com/experiences/



擴增實境 (AR)於教學應用

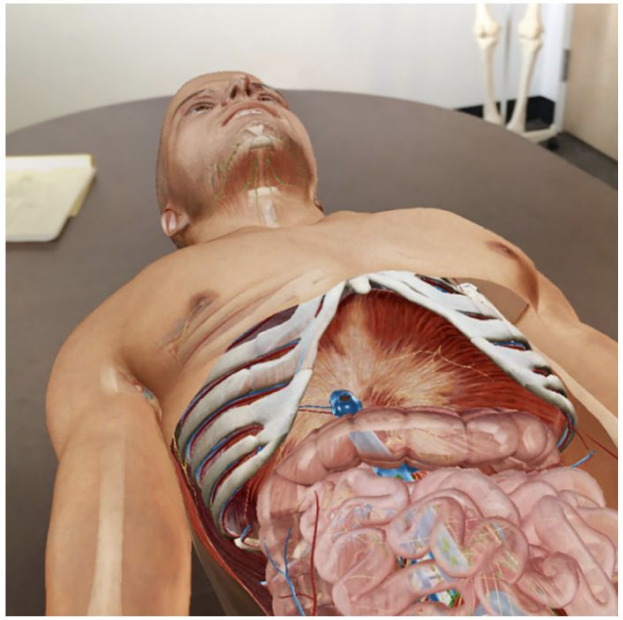
Google AR & VR

https://arvr.google.com/experiences/

Measure

Measure helps you with quick everyday measurements around the house or office, similar to a tape measure.

Try now



Human Anatomy Atlas

Millions of medical professionals, students, and anatomy enthusiasts use Human Anatomy Atlas to see inside and better understand the human body with AR.

Try now

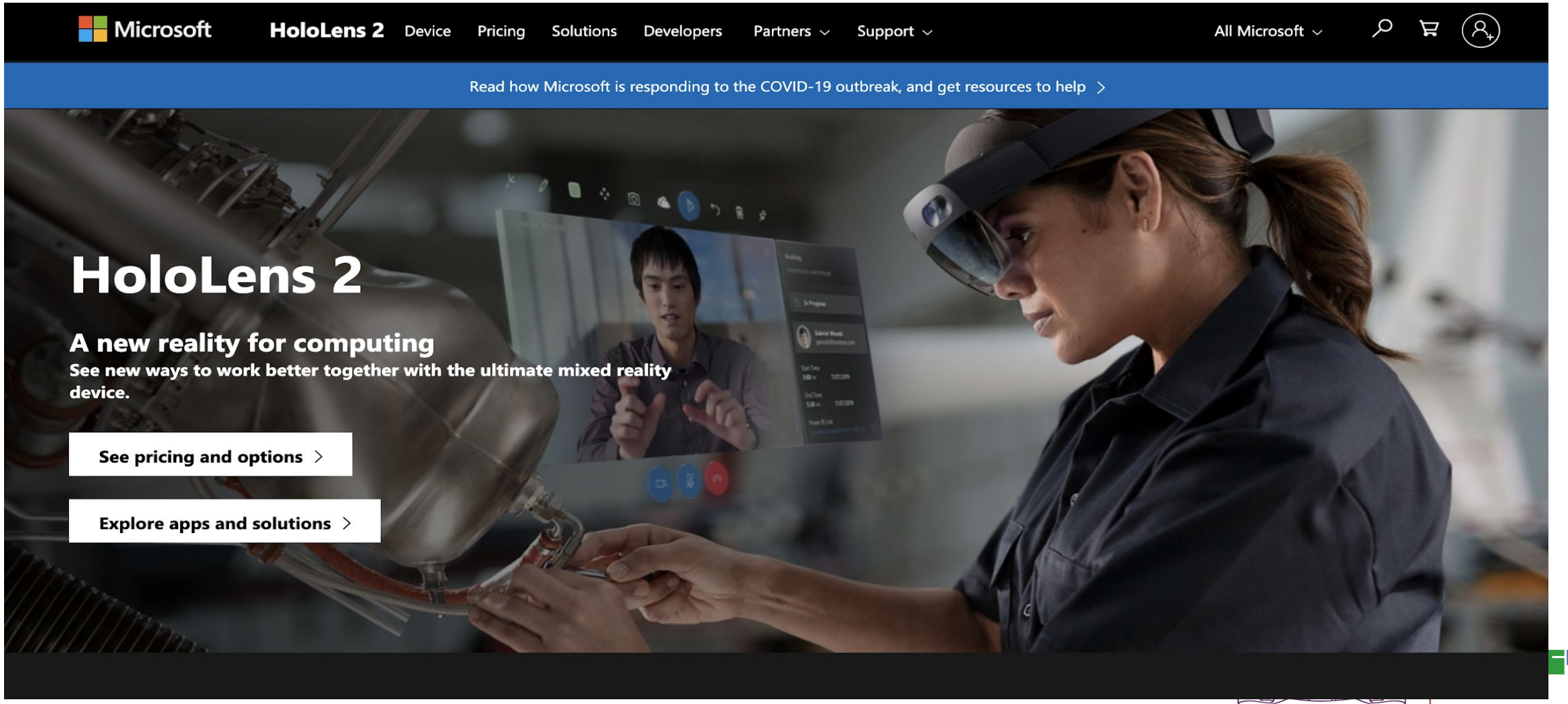
Just a Line

Just a Line is an AR Experiment that lets you make simple drawings in augmented reality, then share your creation with a short video. Draw on your own or with a friend, then hit record and share what you made with #justaline.

Try now

混合實境 (MR)於教學應用

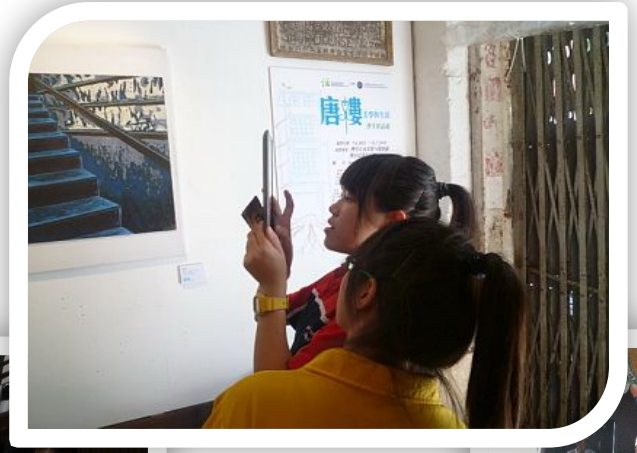
Microsoft HoloLens 2
https://www.microsoft.com/en-us/hololens/



6. 運用EduVenture VR 進行探究式學習

多元化資訊科技教學示例 :移動學習

香港中文大學- **EduVenture**

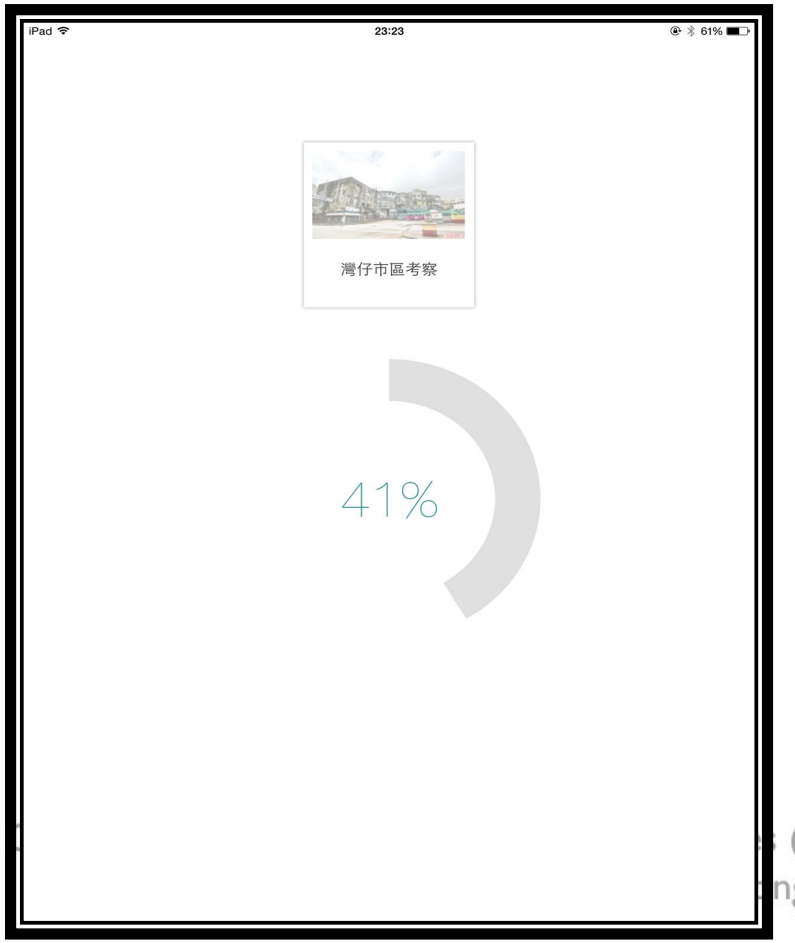


多元化資訊科技教學示例 :移動學習

香港中文大學- **EduVenture**

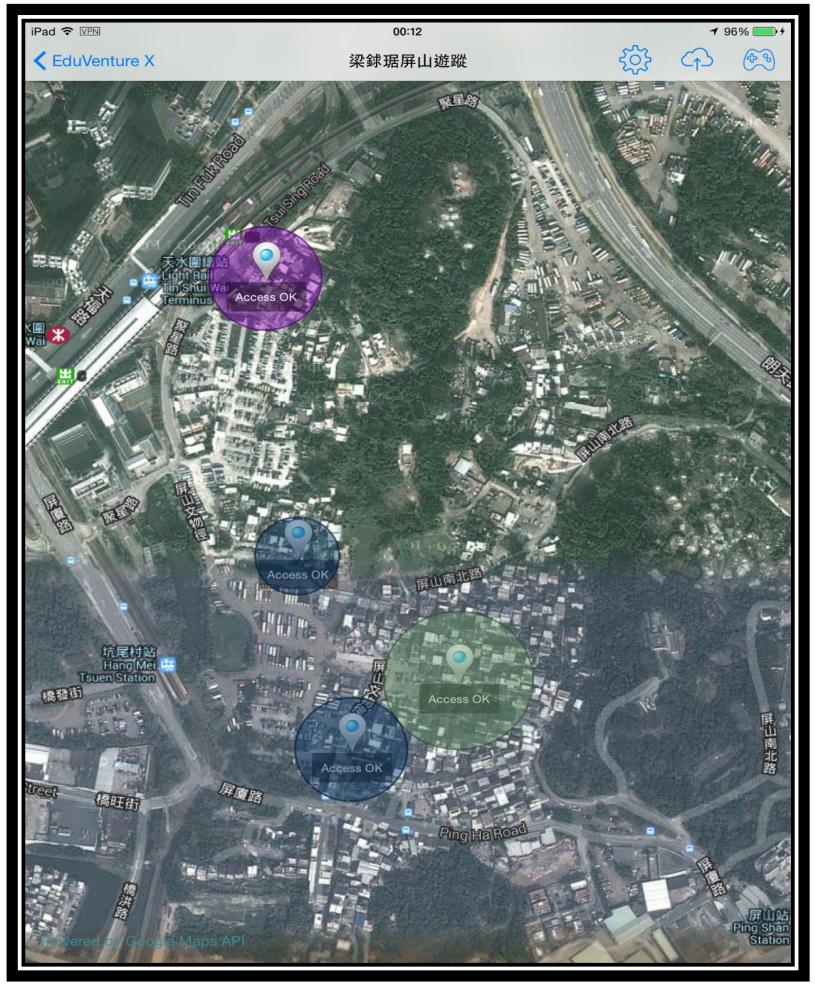
多元化資訊科技教學示例：移動學習

香港中文大學- EduVenture



多元化資訊科技教學示例：移動學習

香港中文大學- EduVenture



EduVenture VR

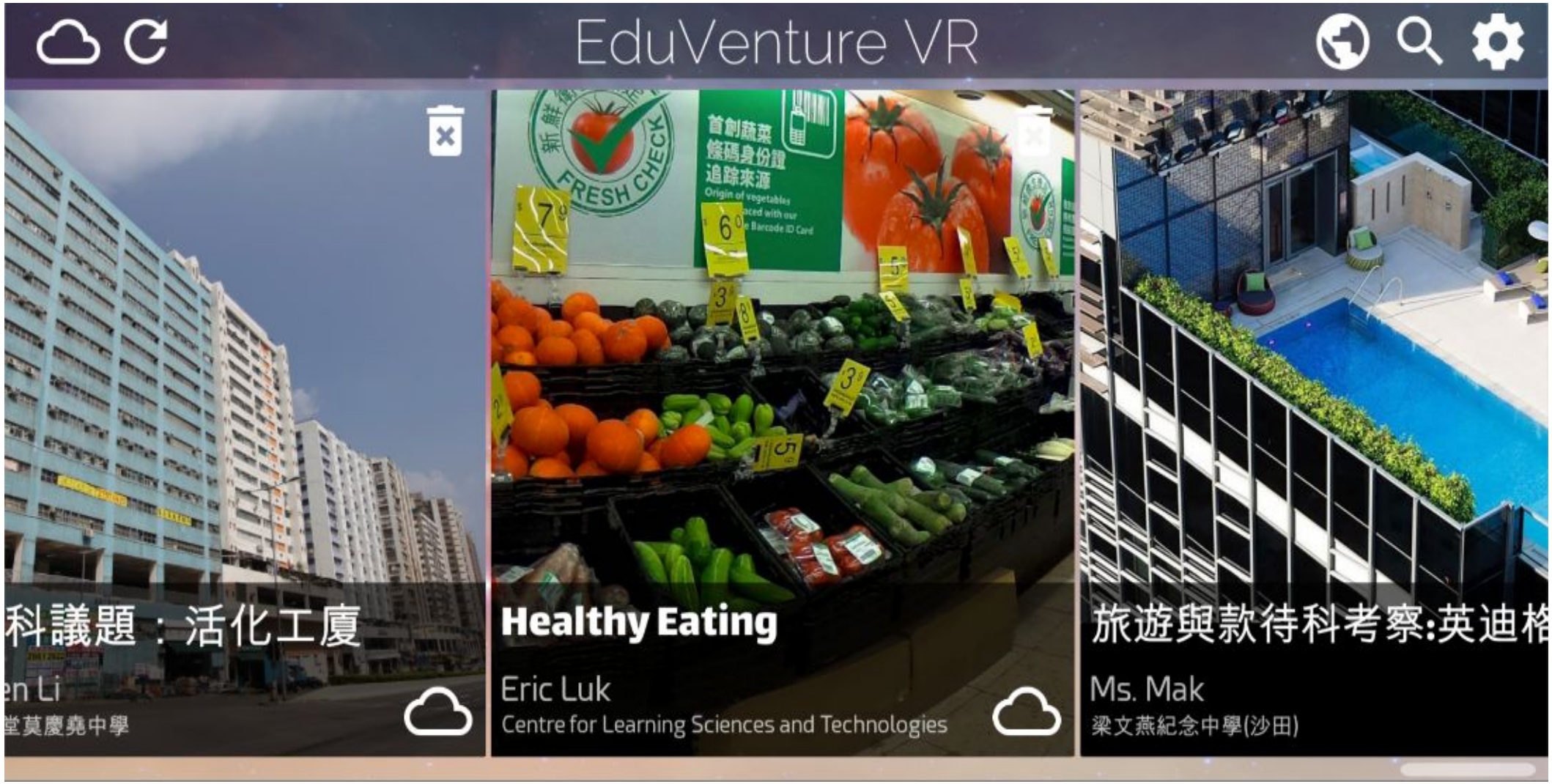
- EduVenture VR (EVVR) is an online platform to carry out Virtual Reality (VR) learning. Using the EVVR composer, teachers can distribute VR content and construct a VR field trip for students.

- They can also add interactive elements inside to enhance students' learning motivation. With mobile devices and tray glasses on hand, students can experience outdoor learning in VR style, which makes teaching and learning more interesting and flexible.

EduVenture VR

- EduVenture VR (EVVR), developed by CLST, CUHK, adopts Virtual Reality (VR) to carry out teaching and learning. VR technology generates a 3D virtual world and simulates student's presence in the environment.
- Students can have better chances to explore the world using VR technology. http://vr.ev-cuhk.net/.

EduVenture VR



Entering EduVenture VR

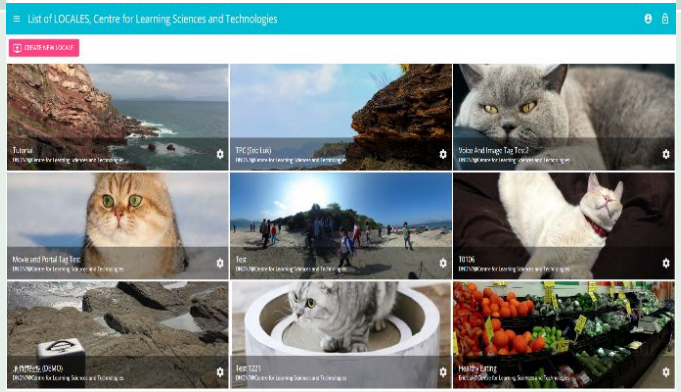
Open the browser and enter the URL: http://vr.ev-cuhk.net

Step	Procedures	User Interface
1	Press the button to enter the EVVR Composer	
2	Go to iTunes (iOS) / Play Store (Android) to download the EVVR App	

EduVenture VR Composer

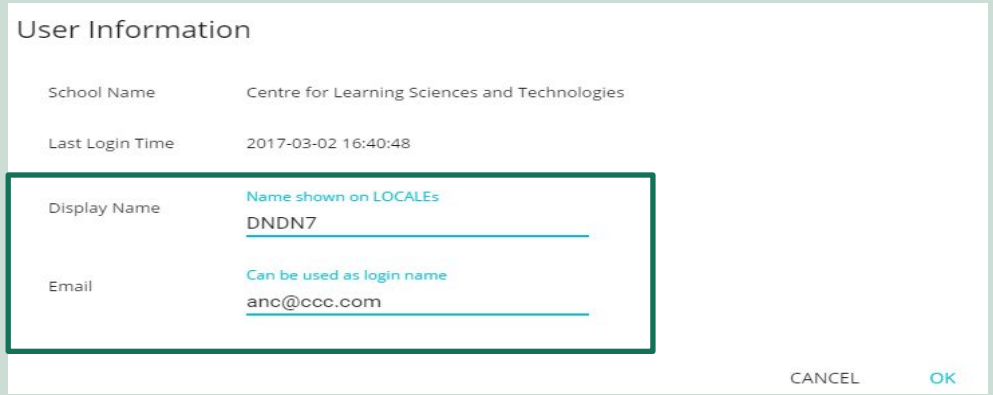
Using the EVVR Composer, teachers can distribute VR content and create their own teaching materials.

In order to identify the owner of the VR content, teachers will be given a username and password to login.

Step	Procedures	User Interface
1	Input username and password, then press “OK”.	
2	Upon successful login, teachers should be able to see a list of VR contents in the main menu.	

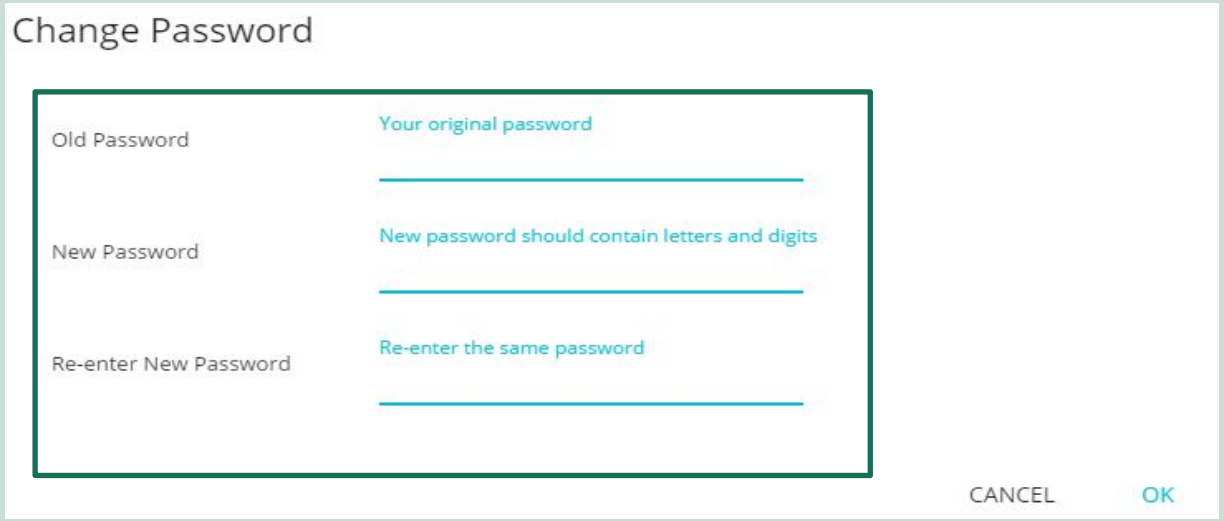
Control Panel

How to Edit User Account Information

Step	Procedures
1	Press at the top, then select “My Info” (name and email).
2	Input the new name, email or password, then press “OK”.
3	Press “Cancel” to discard everything and return to main menu.
UI	

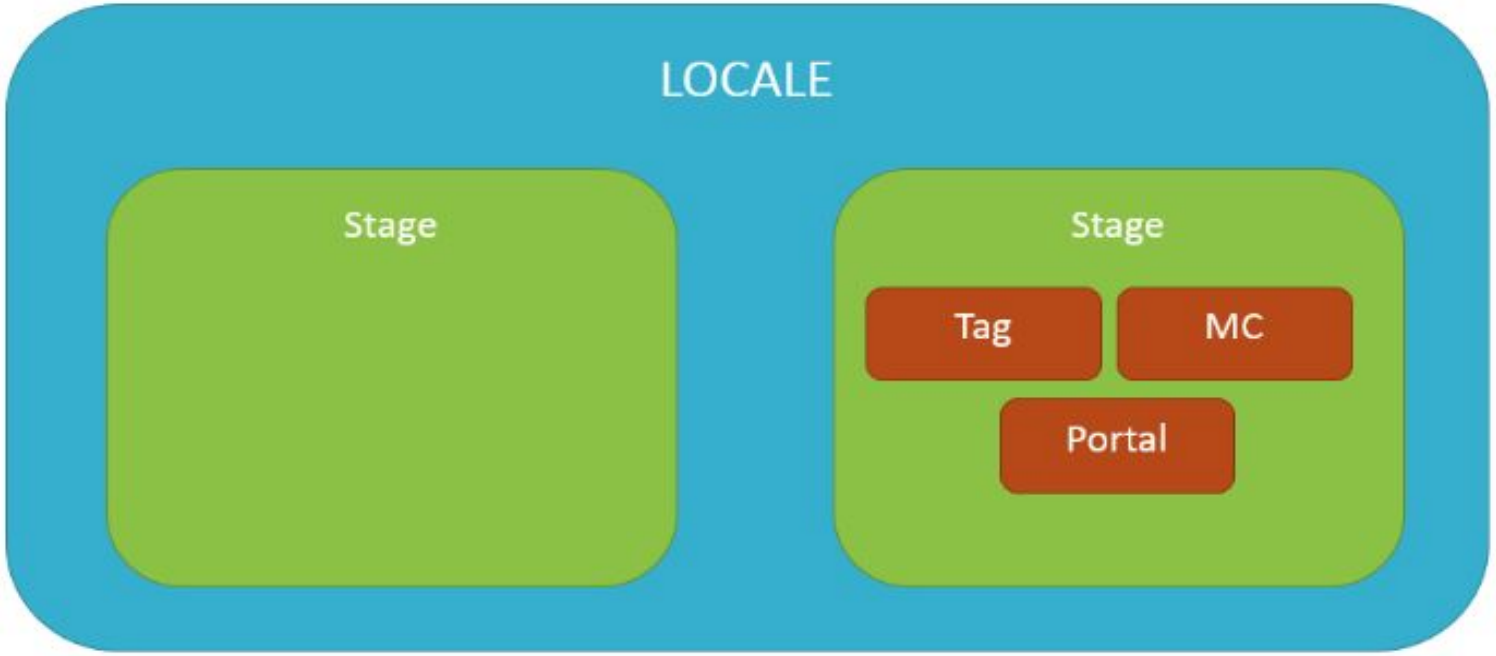
Control Panel

Similarly, teachers can also change their password.

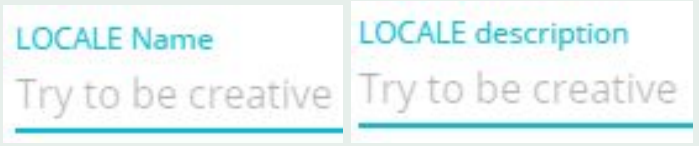
Step	Procedures
1	Press at the top, then select “Change Password”.
2	Input the old password and new password, then press “OK”.
3	Press “Cancel” to discard everything and return to main menu.
UI	

Locales

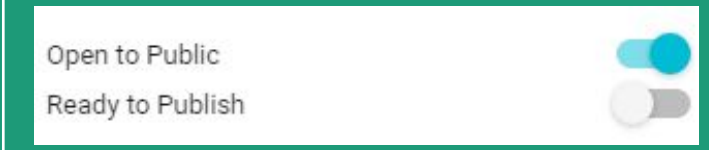
- "Locale", place or locality, especially with reference to events or circumstances connected with it
- "Locale" is referring to the VR learning materials. Each locale is made up of a series of stages;
- Each stage can either be a 360 movie or a 360 image. These stages can combine together to produce a VR learning experience.



How to Create a Locale

Step	Procedures	User Interface
1	Press “Create New Locale” at the top.	
2	Enter the locale’s name and description. Be creative!	
3	Upload the locale’s cover image (jpg, jpeg, png, gif).	

How to Create a Locale

4	Indicate these 2 settings. “Open to Public”: Can all users view the locale? “Ready to Publish”: Is the locale ready to be used by public?	

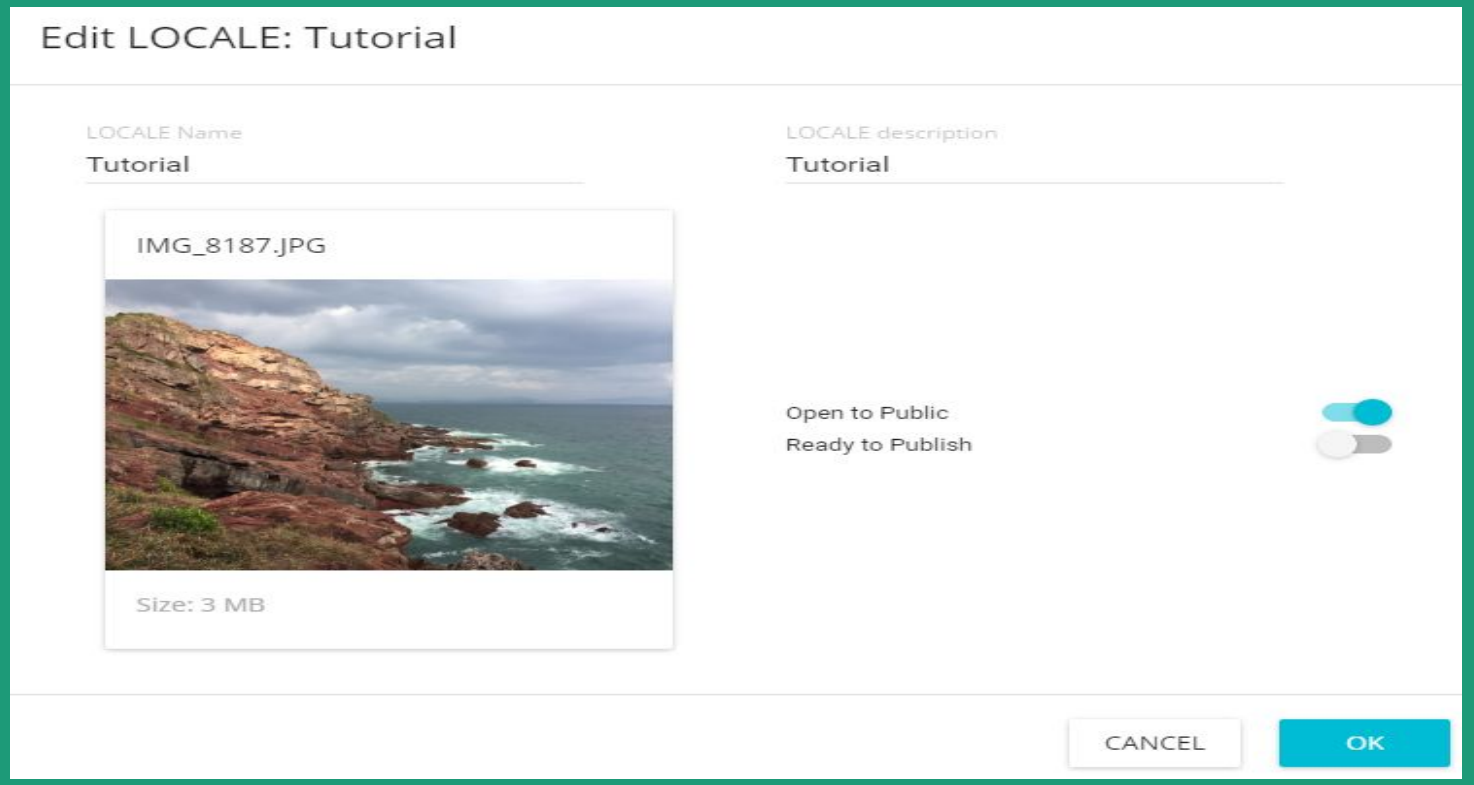
Upon successful creation of locale, a new locale
(with the owner’s name, the locale’s name and the locale’s cover image)
should appear in the main menu.

How to Edit a Locale

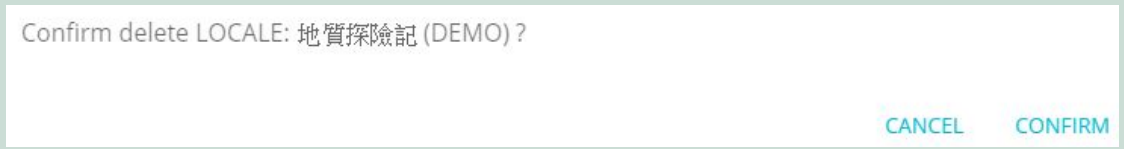
Step	Procedures	User Interface
1	Press the setting button at the right bottom corner.	
2	Press “View/Edit Detail”.	
3	Edit the locale’s name, description, public and publish settings. Press “OK” to confirm and “Cancel” to return.	

How to Edit a Locale

Step	Procedures	User Interface
UI		



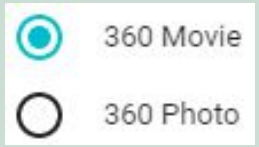
How to Delete a Locale

Step	Procedures	User Interface
1	Press the setting button at the right bottom corner.	
2	Press “Delete”.	
3	Press “Cancel” to return and “Confirm” to delete.	
UI		

Stages

- Stages are the building blocks of a locale.
- A stage can be a 360 movie or a 360 image.
- Inside a stage, teachers can add interactive elements such as tags, MCs and portals.

How to Create a Stage

Step	Procedures	User Interface
1	Press “Create New Stage”.	
2	Enter the stage’s name.	
3	Indicate 360 Movie / Photo (Default: 360 Movie).	

Upon successful creation, the new stage will appear on the left navigation bar.

How to Create a Stage

- The left navigation bar shows all the stages in sequence
- The right hand side allows teachers to upload their 360 movie / image

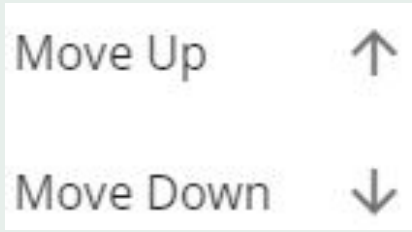
Icon	Meaning
	360 Movie
	360 Image

Upload 360 Movie / Image for a Stage

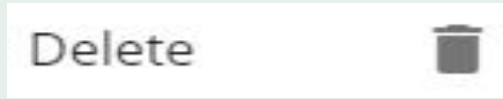
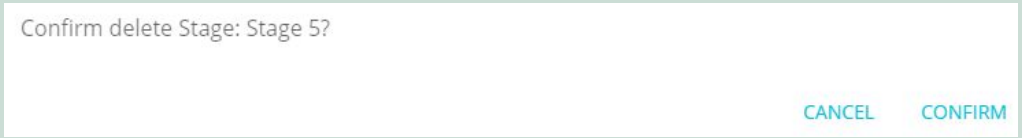
Step	Procedures	User Interface
1	Press “Upload”. Movie: mov, mp4, m4v, avi Image: jpg, jpeg, png, gif	
2	Wait until 100% .	
3	Upon successful upload, teachers should be able to see the thumbnail and the timeline for the VR content.	
UI		

Edit a Stage

- Teachers can further edit the display sequence of stages using the left navigation bar.

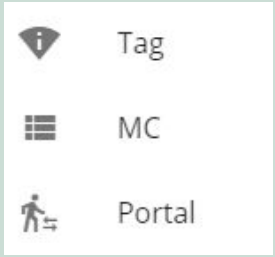
Step	Procedures	User Interface
1	Press the button.	
2	Press “Move Up” / “Down”.	

Delete a Stage

Step	Procedures	User Interface
1	Press the button.	
2	Press “Delete”.	
3	Press “Cancel” to return and “Confirm” to delete.	
UI		

Playback Elements

- Teachers can add interactive elements in the VR world.
- They include tags, MCs and portals.

Step	Procedures	User Interface
1	Drag the timeline to indicate when the element should appear.	
2	Press “Element At This Moment”	
3	Choose the element: “Tag”, “MC” or “Portal”	

How to Create a Tag

- Tag can display information such as text, voice or enlarged image.

Step	Procedures	User Interface
1	Enter the display text.	
2	Choose the tag type.	
2a	For voice, upload an mp3. Toggle autoplay or not (Default: Off).	
2b	For image, upload these formats: jpg, jpeg, png, gif.	

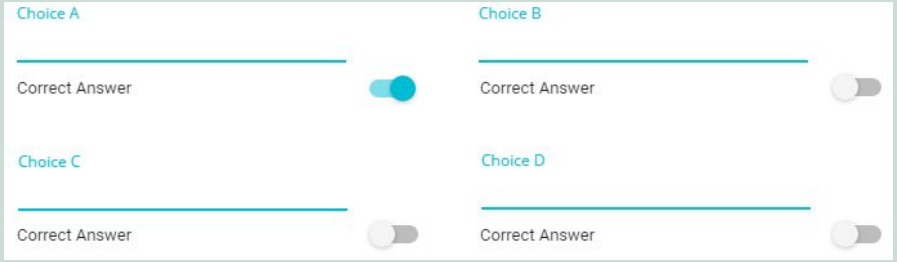
How to Create a Tag

•Tag can display information such as text, voice or enlarged image.

Step	Procedures	User Interface
3	Drag the pin to indicate where the tag should appear.	
4	Drag the timeline to indicate how long the tag should appear.	

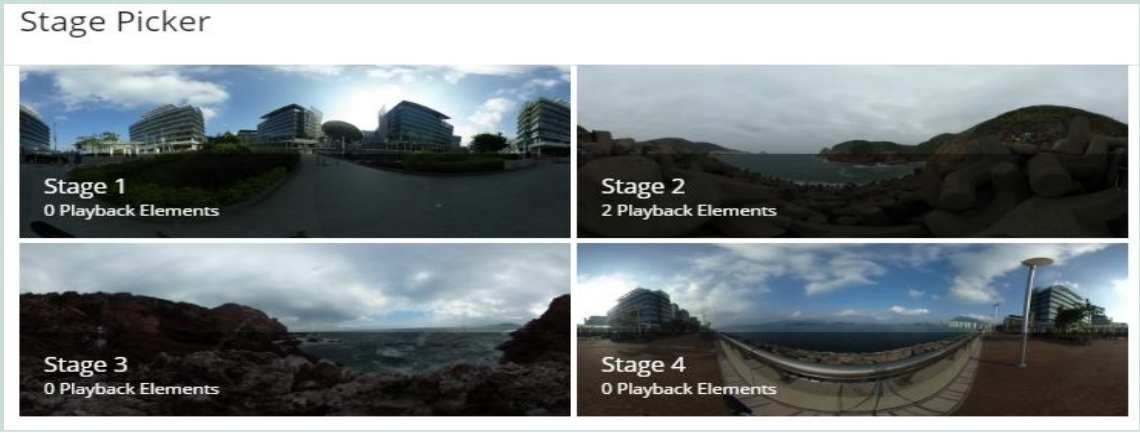
Create a MC

- Each MC has 4 choices and at least 1 correct answer.
- Teachers can limit how many times the students can attempt a MC.

Step	Procedures	User Interface
1	Enter the question.	
2	Enter the 4 choices and toggle at least 1 correct answer.	
UI		
3	Adjust how many times the students can answer this MC.	

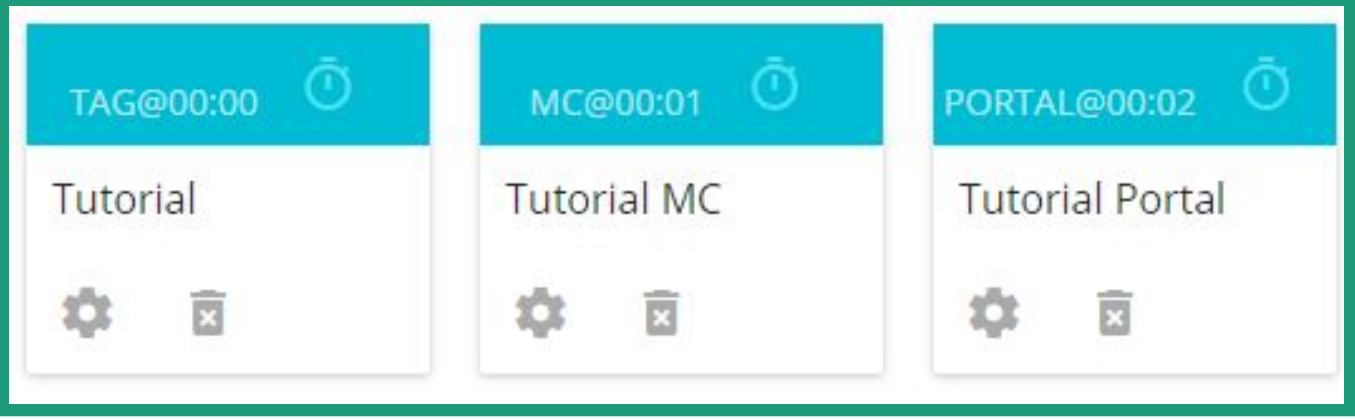
Create a Portal

- Portal is the transfer gateway to other stages.
- Teachers can set at most select 4 destination stages for a portal.

Step	Procedures	User Interface
1	Enter the display text, e.g., “To Stage 2”	Tell the user something about these portals
2	Pick the destination stages.	DESTINATION STAGE 1 DESTINATION STAGE 2 DESTINATION STAGE 3 DESTINATION STAGE 4
UI		

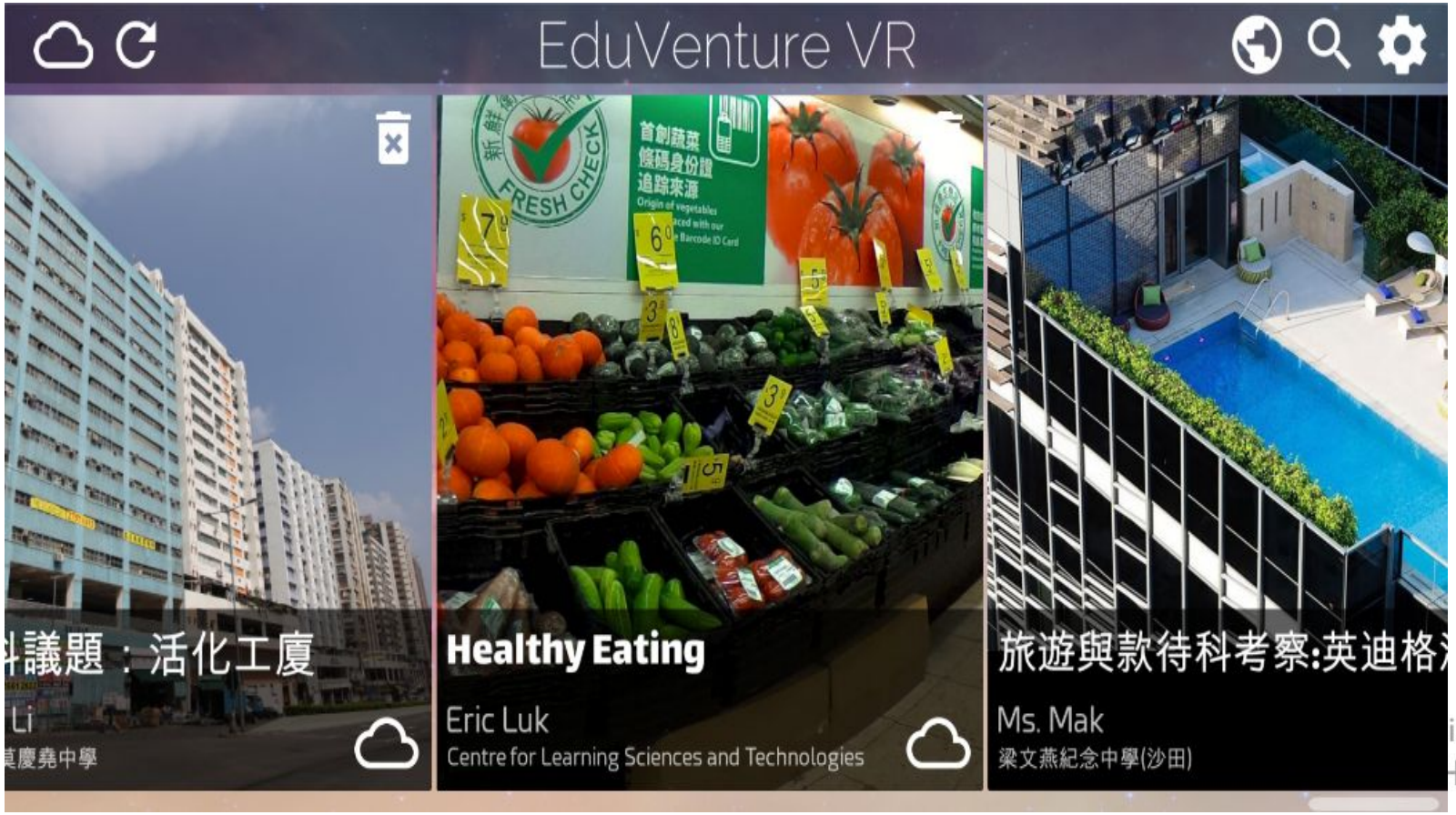
Review the Playback Elements

•Teachers can review the playback elements they added in the bottom panel.

UI		
Step	Procedures	
1	Press to edit the element.	Press to delete the element.

EduVenture VR App

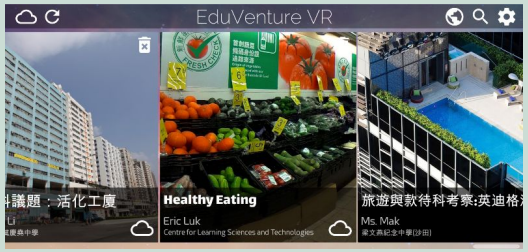
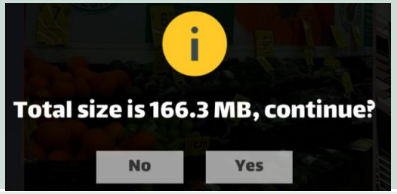
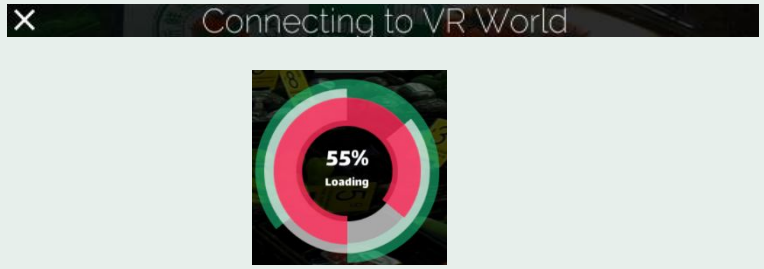
After installing the EVVR App, students should be able to see the locales that are set public and ready to publish in the composer.



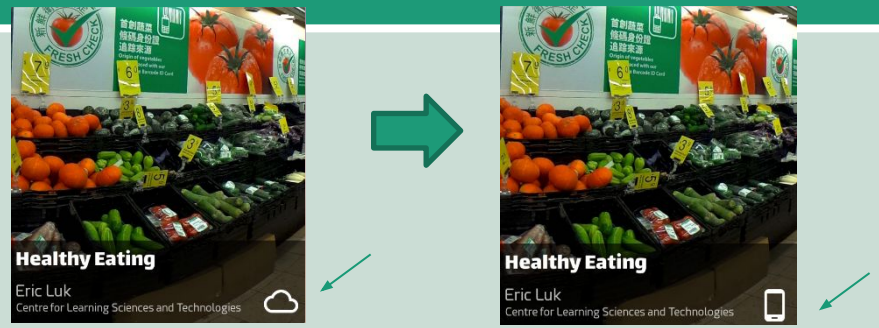
Control Panel

No.	Icons	Functions
1a		Display the online locales (Can switch to 1b)
1b		Display the downloaded locales (Can switch to 1a)
2		Refresh the locale menu
3a		Display all public locales (Can switch to 3b)
3b		Display private locales only (Can switch to 3a)
4		Search a particular locale
5		Configure game settings

Download a Locale

Step	Procedures	User Interface
1	Press the locale to download	
UI		
2	Press “Yes” to download and press “No” to return.	
3	Press ✕ to stop downloading if necessary. Otherwise, wait until 100% downloaded.	

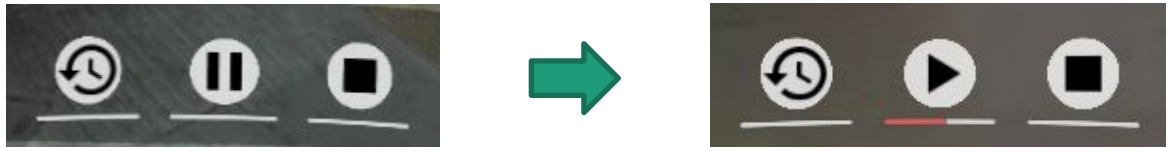
Download a Locale

4	Upon successful downloading, the students can start the locale! Note that the icon at the right bottom corner changes.
UI	

Inside the VR World

How to Reverse/Play/Stop the VR content

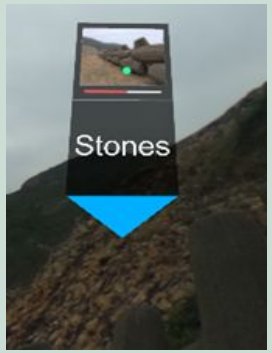
When the students look downwards, a control panel will pop up.



- There are 3 actions: **reverse, pause/resume and stop the 360 movie / image.**
- To perform these in the VR world, simply move the pointer to the button for 2 seconds.

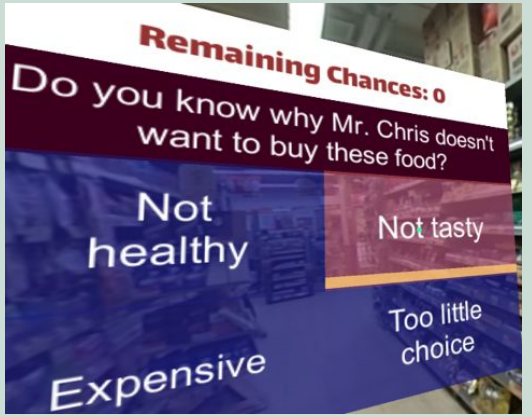
How to Respond to a Tag

Either text, image or voice tag will be displayed (according to the composer's database).

Type	None	Image	Voice
UI			
Step	Procedures		
1	N/A	Point to the thumbnail image for 2 seconds.	Point to the play button for 2 seconds.
2	N/A	An enlarged image will come out eventually.	The sound will be played eventually.

How to Respond to a MC

The number of chances, the MC question and the 4 choices will now be displayed (according to the composer's database).

Step	Procedures	
1	Move the pointer to the answer.	
2	Correct	Wrong
UI		

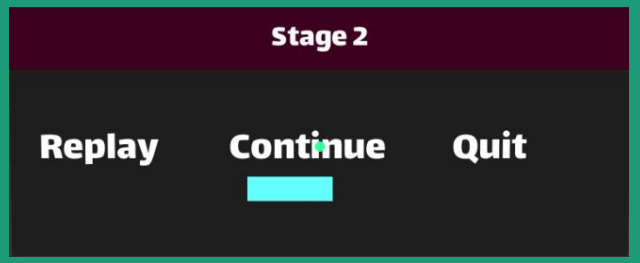
How to Respond to a Portal

Students can teleport to other stages through portal. The portal title and destination stages will now be displayed (according to the composer's database).

Step	Procedures
1	Move the pointer to the destination stage and wait for 2 seconds. The portal will then teleport to the destination stage.
UI	

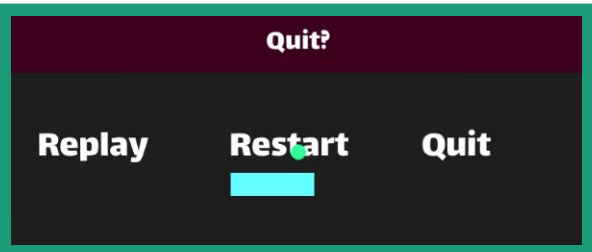
How to Continue to Next Stage

- After finishing a stage, a “Continue Panel” will pop up.
- The student can either replay, continue or quit, by moving the pointer to the option.

UI	
Actions	Meaning
Replay	Replay the current stage.
Continue	Go on to next stage.
Quit	Return to the main menu.

Quit Panel

- After finishing all stages, a “Quit Panel” will pop up.
- The student can either replay, restart or quit, by moving the pointer to the option

UI	
Actions	Meaning
Replay	Replay the current stage.
Restart	Restart from the first stage.
Quit	Return to the main menu.

7. 總結

Session 1

1. Overview of Mainstream Mobile Computer Devices
2. Understanding Basic Operations of Mobile Computer Devices for Learning and Teaching
3. Using Google Classroom to Facilitate e-Learning
4. Conclusion and Discussion of Course Assignment

Session 2

1. Assignments Feedback
2. Digital data logger for PBL
3. User Authentication and Account Management
4. Using EdPuzzle for Flipped Classroom Learning
5. Using AR/ VR to Enhance Classroom Experience
6. Using EduVenture® X and EduVenture® VR in Inquiry-based Learning
7. Conclusion and Discussion

課程習作

試用 Google Applications, 去設計一個有效的教學設計, 及說明如何提升教學成效

輸入
https://forms.gle/VbGbTn8fK2XUwioM7

查看
https://docs.google.com/spreadsheets/d/1PQJ42Rd3PEjrtGce3fbqRkYe6a8ZhCEIQLkxBYhJEhU/edit?usp=sharing

聯絡

Mr. MAN Ho-wai
Mobile : +852 6112 2400
Email : manhw@ykh.edu.hk