Expeditions Workshop
Facilitator's Guide

Resources

- Slide Deck
- Workshop Agenda
- Pre-workshop preparation
- Step-by-step facilitator notes
- One page summary of Expeditions for participants
- Inspirational use cases to connect to curriculum
- FAQ's and technical support

Workshop Overview

The Expeditions workshop is designed to be a hands-on and interactive experience. Participants will learn to set up the technology and effectively running an Expedition for a group, as well as how to conduct a self-guided Expedition.

The workshop begins with an introduction to AR and VR and the differences between the two. It shows inspirational case studies on how the technology can be leveraged to create experiential learning activities for students without leaving the school building. Emphasis should be placed on the immersive nature of VR and AR to help students visualize concepts and understand content.

Next, participants are guided through an orientation of the hardware and software components required to run VR Expeditions. Participants get acquainted with these components by actively participating in an Expedition as an explorer. Next, participants find and download a VR Expedition and guide a partner or small group through a VR Expedition that relates to a course that they teach.

Participants are then introduced to AR Expeditions, and are given the chance to either go on an AR Expedition or lead an AR Expedition. They will learn about how to use markers to coordinate the student experience.

Participants are introduced to self-guided Expeditions, and have the chance to find and participate in a self-guided Expedition.

Facilitators then share available resources such as the help center, TES.com and the Google+ community.

The workshop closes with a short brainstorming session on how educators might leverage Expeditions to enhance student learning in a subject area or grade.

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Workshop Agenda

This workshop is intended to be between 1.5 hours and 2 hours long. Length can be modified by providing more or less time for participants to explore tours during the demo and/or create tours.

Section	Slides	Time
Introduction and Goal Setting	1-18	15 mins
VR Expeditions - Student Experience	18-33	10 mins
VR Expeditions - Guide Experience	33-46	20 mins
AR Expeditions - Student/Guide Experience	47-55	15 mins
Self Guided Expeditions - AR & VR	55-63	5 mins
Troubleshooting	64-77	5 mins
Learning Goals & Brainstorming	78-90	15 min
Survey & Closing	80-81	5 mins

Pre-Workshop Preparation

Running this workshop requires some pre-planning on the part of the facilitator. Please review the following preparation advice well in advance of your workshop to ensure an optimal experience for your participants.

Required equipment
This workshop is best when the facilitator provides all of the necessary equipment. These items can be purchased as a kit, or assembled à la carte. Kits include compatible devices for the guide and explorers, VR viewers, selfie-sticks and more. Visit this website to learn about required equipment.

Hardware Setup
You will need to ensure that you have access to a peer-to-peer compatible WiFi connection for the workshop. The peer-to-peer network is how the explorer and guide devices communicate. You will need to set up a router, separate from your institutions general WiFi network. You can learn more about WiFi setup here.

After you have downloaded the Expeditions application, you should ensure that all devices are connected to the router before the date of the workshop,

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App Installation
You will need to ensure that all devices have the Expeditions app installed. Simply search for Expeditions in the Google Play Store or the iOS App store. Learn more about the Expeditions app here.

Download Tours in Expeditions
We recommend downloading some Tours to the devices prior to the workshop. While participants will have the opportunity to search for and download Tours during the workshop, if your WiFi is not high quality, you could run into slow download times or other errors. Therefore, we recommend finding at least one VR Tour and one AR Tour that is relevant to your audience and downloading those on all devices prior to the workshop. The Tours that we used in this demo are Beating Ebola in Sierra Leone (VR - teacher and student experience); The Skeletal System (AR) and the International Space Station (VR). However, you might choose others based on your audience.

To find AR and VR Tours, search within the Expeditions app, or consult this list.

Print AR Markers
For the AR portion of the workshop, you will need to have AR markers printed in advance. You can find instructions for printing AR markers on slides 49-50.

Step-by-Step Facilitators Notes

Quick Links

INTRODUCTION

Expeditions
As people enter the room, greet them and ask them to introduce themselves. Take it one step further by asking people to talk about ways (if any) they've used Google tools, including AR and VR, in their classrooms or research thus far.

You should have upbeat music playing in the room to add to the experience and encourage participants to introduce themselves to each other as you await the arrival of other participants.

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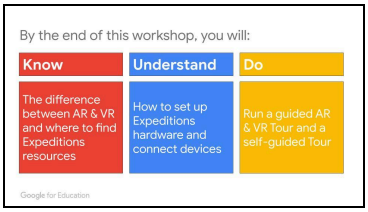
Welcome!
Provide a warm welcome to attendees. High energy and enthusiasm will set the tone for the workshop.
Introduce yourself and provide context for the workshop - Why are you here as a facilitator? Why are they here as participants?

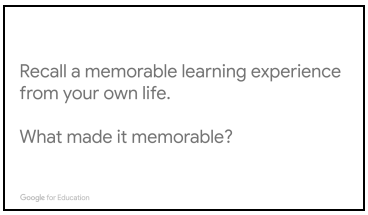


By the end of this workshop, you will:
Explain the goals of the workshop. In the next 1.5 hours, participants will learn:

- The difference between AR & VR
- How to set up Expeditions hardware, including AR and VR, and connect all devices successfully
- How to find and download AR & VR Tour content and run a guided AR & VR Expeditions session
- How to run self-guided Tours
- Where to find accompanying Expeditions resources, including help center, training center, lesson plans on TES.com, and G+ community
- Provide feedback on Expeditions for the Google product team

Think back...
Pause participant's conversations. Ask them to think quietly to themselves...

Recall a memorable learning experience from your own life.



What made it memorable?
Instruct participants to think about a memorable learning experience from their own life. Prompt them to think about what made it memorable. What did they learn? Why do they remember that moment?

Buddy Up
After 30 seconds of silence, have each participant turn to their buddy and explain what came to mind from their own learning experiences. Chances are, it was immersive, and experiential.

Give participants one minute each to share.

Ask participants to return to their seats.

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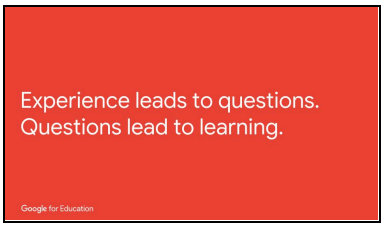
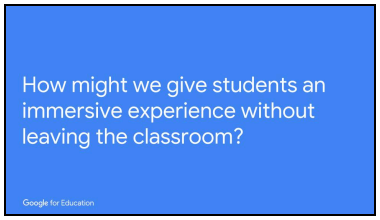
What makes a memorable learning experience?
Ask for a couple of volunteers from the group to share what they discussed with their buddy. Look for key ideas:

- Immersive - students are fully immersed in an experience (could be inside or outside the classroom)
- Contextualized - students are learning in context. They understand the connection between their learning and the world beyond the classroom because they can see it.
- Unique - students are experiencing something that they would otherwise not have been exposed to - a new place, a new technology, a new idea, a new way of looking at the world.



Experience leads to questions.
Learning connects to lived experience - it's contextualized and it leads to students asking questions. It inspires a sense of wonder! This sense of wonder leads to students asking questions, which will allow them to continue learning, develop new understandings, etc.



How might we give students an immersive experience without leaving the classroom?
So this is all well and good, if we could all afford to take our students to the Galapagos Islands for the weekend, right?

How might we give students immersive experiences, when we are unable to take them on real trips?

Virtual Reality
It's not just for gamers.

By definition, virtual reality is a computer-generated simulation of a three dimensional image or environment that can be interacted with in a seemingly real or physical way by a person using special equipment, such as a headset.

In other words, Virtual Reality can take you anywhere. It's an immersive experience that allows you to feel like you are in another place.

Google has made virtual reality accessible to anyone with a smartphone and VR viewer, such as Google Cardboard or Google Daydream Viewer.

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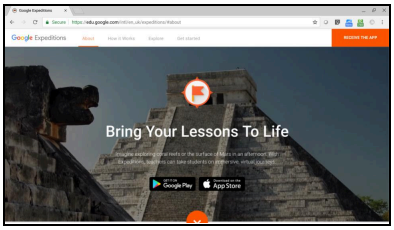
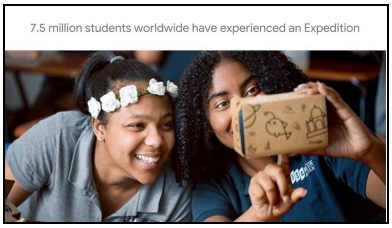
By combining the software on our phones with lenses in the headsets, we can virtually experience and interact with objects and environments and the experience become immersive.

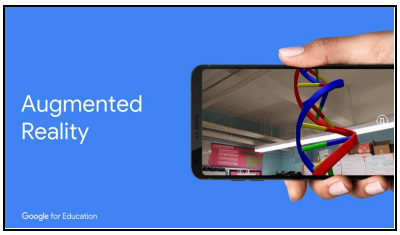


Expeditions
Google created Expeditions to help educators take students on journeys around the world, inside laboratories, through history, museums, space, and even inside the human body.



7.5 million students worldwide have experienced Tours
Leveraging the power of Virtual Reality, students are able to virtually experience things that would have otherwise been impossible.

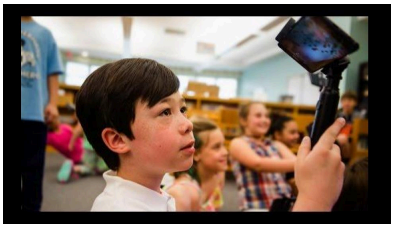
Video
Google has worked with teams of experts from around the world to create guided VR experiences for teachers and students. From exploring television sets, to going on underwater adventures, to touring historic sites around the world, these experiences are curated to make VR accessible. Let's watch a short video to see Google Expeditions in action.



Augmented Reality
Has anyone heard of the term Augmented Reality? (Ask for a volunteer to explain). Look for a definition that is something like: Using mobile devices to bring virtual objects into your physical space, so that you can see and virtually walk around 3D objects as if the objects were physically in the room.

In other words, Augmented Reality can bring you anything. It allows you to view objects in 3D, as if they were actually in the space that you are in.

Expeditions AR enables teachers and students to bring virtual objects into their physical space, bringing abstract concepts to life. Anything from a strand of DNA to a whirling tornado can be brought into the classroom and students can see and walk around the object as if it were right there. Here's another short video that shows this exciting new technology in action...



Show video

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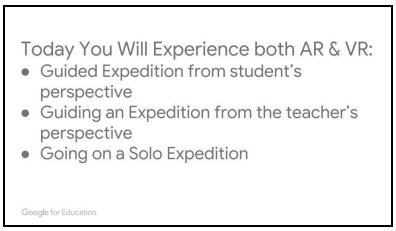
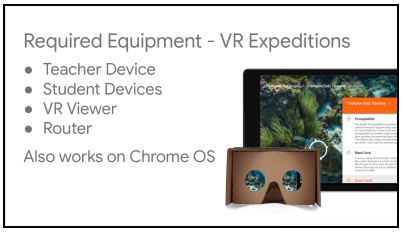


Today You Will Experience both AR & VR:

- Guided Tour from student's perspective
- Guiding a Tour from the guide's perspective
- Going on a Solo Tour

Explain that in the first part of today's workshop, they are going to experience a guided VR Tour from the student's perspective. Then, we will each get the chance to guide a VR Tour.

Next, we will learn about AR Expeditions, and have a chance to see AR in action in guided mode. Finally, we will have the opportunity to go on a solo, self-guided Tour in both AR & VR.



Required Equipment - VR Expeditions
Explain that to use Google Expeditions in a group setting, you need to buy an Expeditions kit or build your own. You can also explore on your own using a compatible device. One new feature of Expeditions is that it also works on the Chrome OS!

We will cover how to set up WiFi at the end of the workshop, as it could be daunting for new user to get into WiFi connection set up in the beginning.

Option 1: Buy a kit
There are 2 types of kits:

Compatible for virtual-reality (VR) Expeditions
Compatible for both VR and augmented-reality (AR) Expeditions

VR-compatible kits have:
A tablet and mobile phones pre-installed with the Expeditions app
VR viewers
A router that allows Tours to run over its own local Wi-Fi network
Chargers
A storage case

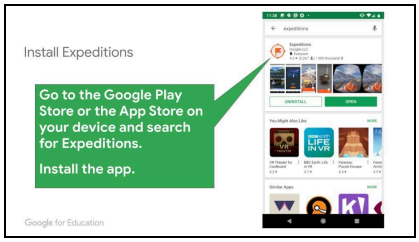
As well as the above contents, AR-compatible kits have:

AR-compatible mobile phones
(Optional) Selfie sticks for AR-compatible devices

The kits are available for various groups of students. To learn where to buy an Expeditions Kit, visit:
https://support.google.com/edu/expeditions/answer/7375176?hl=en#

Option 2: Build your own kit
Expeditions works on Android, Chrome OS, including the Chromebook Tab 10, and Apple® iOS® devices. To build your own kit, you need:
A mobile device for the guide—We recommend a tablet.
Mobile phones—The devices must fit into the VR viewers you choose. See Mobile phone requirements.
VR viewers—One per mobile device. Check the VR viewer website to make sure they work with your devices. We recommend Google Cardboard.
A router that allows Expeditions to run over its own local Wi-Fi network.
(Optional) A speaker or headphones to provide sound.
(Optional) Selfie sticks for AR-compatible devices.

Option 3: Explore on your own
To explore on your own, you need:
An Android, Chrome OS, or iOS mobile device. See Mobile phone requirements.
The Expeditions app. Learn how to Get the Expeditions app.
[Optional] A Cardboard or Daydream VR viewer. Learn more about Daydream, including phones that work with Daydream.



Install Expeditions
It is highly recommended that you run this workshop with an Expeditions kit. Prior to the workshop, you should ensure that all devices have the Expeditions app installed and each of your sample Tours downloaded on each device. You will also need to ensure that each device is connected to the router.

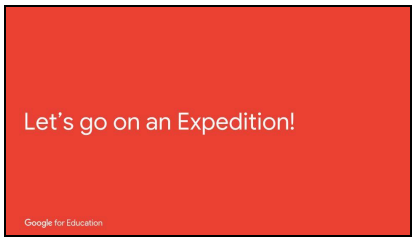
However, we also recommend that you show this slide to participants so that they know where to get the Expeditions app on their own devices. Explain that they should search in the Play Store or App Store for Expeditions, and install the app.

Let participants know that the app is the same for both joining Tours as a participant, and for guiding a Tour for your students. We will explain in a few minutes how to do each.

Explain that if your school uses managed Android devices, students might not be able to install the Expeditions app themselves. If you're a teacher at a school with managed

devices, your administrator can enable Expeditions in the Admin Console. Check with your technology administrator to learn more. If you don't have Play for Education access, contact your school's administrator. You might also need to contact your school's administrator for managed iOS devices.

GUIDED EXPEDITIONS VR



Let's go on a Tour!
Who's excited to go on a Tour?!!

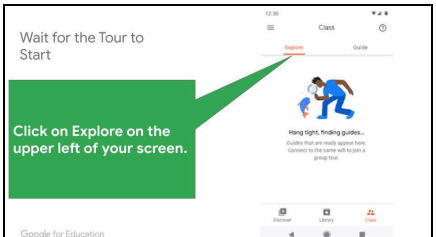
You'll need to get out the devices and ensure that everyone has access to a Cardboard-approved VR viewer. Participants can also share devices and headsets.

To ensure the workshop goes smoothly, we advise downloading the Tours that you wish to demo in advance. You can pick any two Tours that are suitable for your group - one VR and one AR. We advise demonstrating a Tour that shows all of the unique features of Expeditions, including narration and image overlay. The Tours that we used in this demo are Beating Ebola in Sierra Leone (VR - teacher and student experience); The Skeletal System (AR) and International Space Station. But you might choose others based on your audience.

The Student Experience
The following slides are set up to mirror the experience that the "students" will be having. You might be using a different Tour, but the screen shots will show your participants where to click when joining a Tour. You will need to operate two devices at this point: have one device setup to project this slide deck, and another device that you will use to lead the Tour.

On your other device, you should load up a Tour in Guide mode for your participants to join.

Join A Tour
Direct participants to open the Expeditions app and then click on "Class" on the lower right of their screen.



Wait for the Tour to Start

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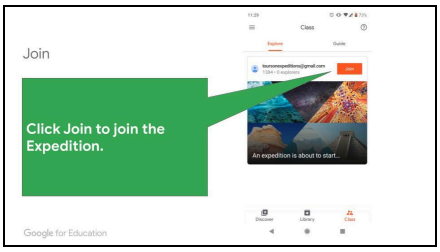
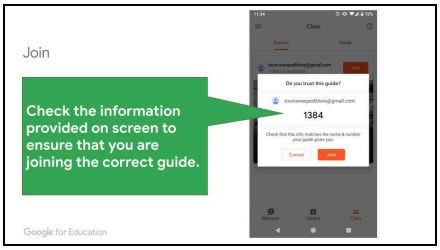
In class, students should click on "Explore" on the upper portion of the screen. Explain that until the Guide starts the Tour, students will see this screen.

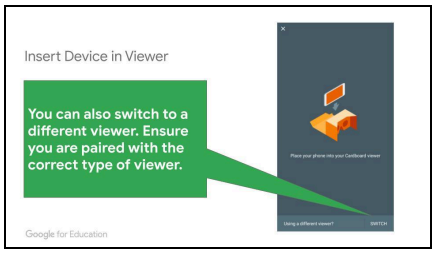


Join
Invite your participants to join the Tour that you are guiding.



Join
The email account that you are signed into along with a 4-digit code will appear on the guide's screen. Explorers (students) are encouraged to check that the information on their screen matches the information on your screen as the guide.

Full Screen Mode vs. VR Mode
This is a good opportunity to explain to participants that any Tour can be viewed in VR or it can also be viewed in full screen mode. Highlight that full screen mode can be good for younger students, students with disabilities, or students who might find the VR experience overwhelming. Participants joining a guided tour in full screen mode will still have the ability to follow along and see points of interest.

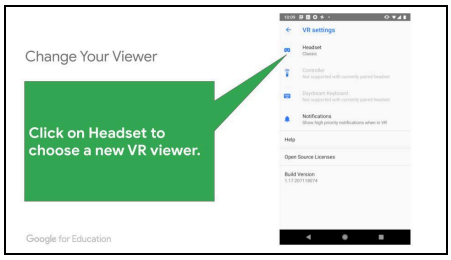


Insert Device in Viewer
Before you begin the Tour, you should explain the relationship between the headset and their devices. Explain that different headsets have slightly different dimensions, and therefore you should pair your device with your headset.

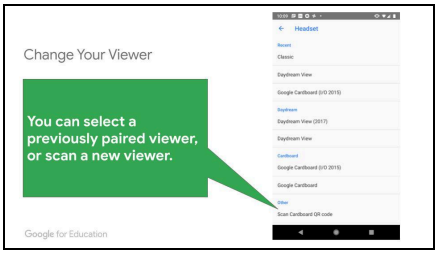
This could also be a good time to explain the various headsets that are available on the market. Google Cardboard is all that is required for Expeditions; however, Daydream headsets also come with a controller. Most often, you will be running Expeditions with a Google approved Cardboard viewer.
Most Expeditions kits will be run with Google approved cardboard devices. However, if you decide to use Expeditions with another viewer, such as a Google Daydream Viewer,

you may need to switch your headsets in the app. Therefore, you should also show participants how to switch/pair their devices with their headsets by clicking on the SWITCH button on the lower right. The following slides walk through that process.

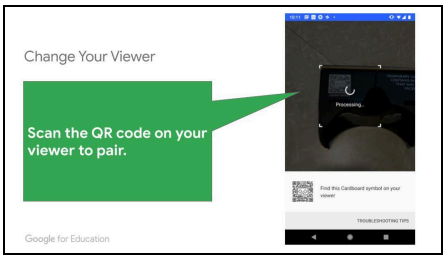
Insert Device in Viewer
Explain to participants how to put the device into the Cardboard viewer. Walk them through opening the front flap, inserting the device and closing the flap.



Change Your Viewer
When you first begin the tour, you may notice that you can click on "SWITCH" at the bottom right of the screen. Alternatively, if the Tour has already begun, you can click on the settings icon in viewing mode and change the viewer. Note that this screen might look different on different devices, as it is in the settings for the Google Expedition app on the operating system of your device.



Change Your Viewer
Pairing a new headset is easy, thanks to QR codes. Simply click on the Scan Cardboard QR code button and then scan the QR code on your headset.

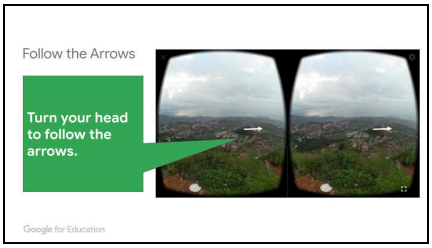


Change Your Viewer
Scan the QR code on your viewer to pair
Scan the QR code on your headset.

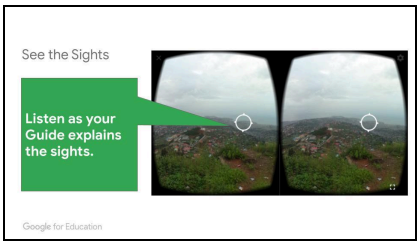
Insert into Viewer
Invite participants to place their devices in the headsets. Remind participants to be careful not to walk around and to watch their balance when using the headsets.
If participants do not have headsets, instruct them to click on the full screen button on the bottom right, to

move to full screen mode. This is best experiences in landscape, so ensure these participants keep their devices horizontal.

You may now begin to guide your Tour. Start by reading the narration for the first scene as participants look around and explore the scene.



Follow the Arrows
As the guide, click on the first highlight in the scene. Explain to participants that they should now see an arrow appear on their screens and that they should follow that arrow until they see the circle in their view. Tell participants that this is the first point of interest of this scene. You can also explain to the participants that as the Guide, you can see where students are looking, so that you know if all of them are looking in the correct direction.



See the Sights
As the guide, read the narration for the first point of interest. Then, continue through the other highlights of this scene. We recommend showing at least 2 or 3 highlights for the scene before moving on to the next scene, so that participants can get a full experience.

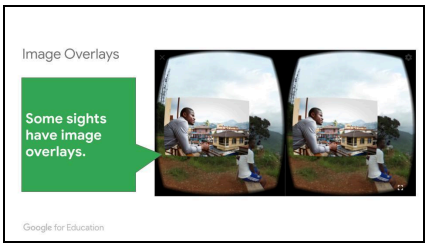
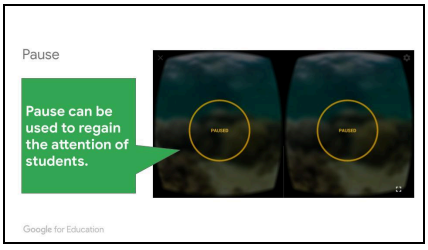
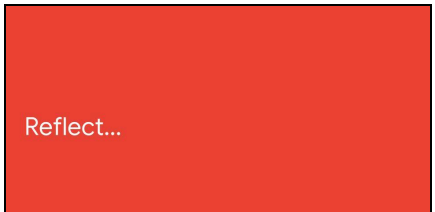


Image Overlays
As the guide, move on to the next scene. Read the narration for this scene, and show some of the highlights. Ideally, this scene will also include an image overlay, so that participants can experience that feature of Expeditions.

Continue to guide participants through another couple highlights.



Pause
Pause the Tour. Have participants remove their headsets. Explain that the pause feature allows the guide to regain the attention of the class. This is a great time to check for understanding and ensure that participants have all had the opportunity to view the Tour. If participants have been sharing devices/headsets, ensure that all participants have had the chance to use the headset.



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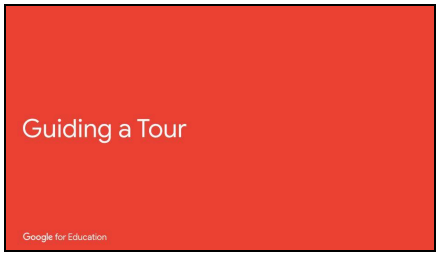
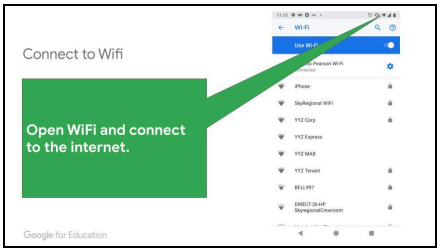
Reflect...
Teacher Talk:
Now that you have had the chance to experience a Tour from a student's perspective. What are your thoughts? What did that experience feel like? How do you think your students would react?

Ask a couple of volunteers from the audience to share their thoughts. Check to see if anyone has questions before moving on.



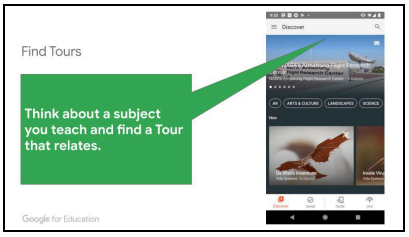
Guiding a Tour
Explain that next we are going to get to see the Tour from the guide's viewpoint. In order to run this section of the workshop, you will need to explain that you're going to walk participants through the steps of guiding a tour, and in a few minutes they will be dividing up into small groups so that they can each have an opportunity to be the guide.



Connect to WiFi
Explain to participants that we are now going to search for Tours in the app to find one that connects with our classroom. In order to do this, we need to switch to a WiFi network that has internet access. We currently have the devices connected to a local router to allow us to guide the Tour as a group.

Tell participants to go to the WiFi settings on their device and connect to a WiFi network that has internet access.

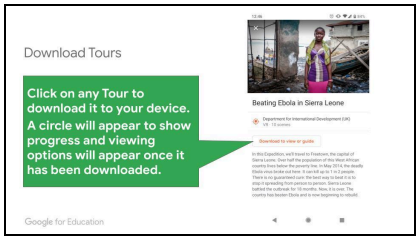
Note to Facilitators: You should know in advance of any passwords, etc. required to connect to the internet. Alternatively, you can have participants complete this section of the workshop with Tours that you have already downloaded to the devices in order to overcome the potential challenge of everyone connecting to the WiFi.



Find Tours
Think about a subject you teach and find a Tour that relates. For this portion of the workshop, have participants follow along with you. In a few minutes, you will ask a couple of volunteers to come up and lead the group through a Tour.

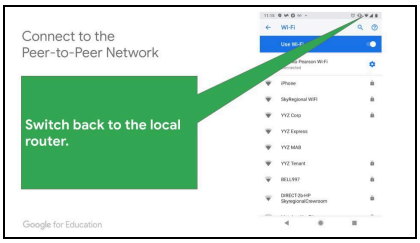
First, have each participant think about a subject that they teach, and search for keywords for Tours that might be related. For example, a history teacher might search

for WWII; a science teacher might search for biodiversity or space; or an art teacher might search for museums; a math teacher might search for engineering.



Download Tours

Show participants how to click on a Tour to download it. Explain that once the Tour is downloaded to their device, they do not need an internet connection to view it. However, they will need a peer-to-peer WiFi network in order to invite students to go on a Tour. Downloaded Tours can be found in your Library by clicking "Library" in the middle of the main screen.

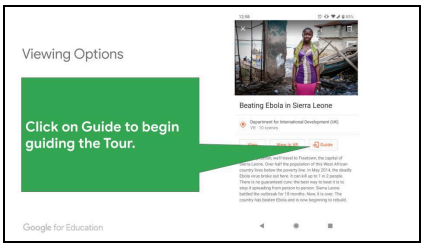


Connect to the Peer-to-Peer Network

Explain to participants that they now need to switch back to a local router to allow them to guide the Tour.

Tell participants to go to the WiFi settings on their device and connect to the local router network that has been set up for the Tour. Ensure that they have the password if required.

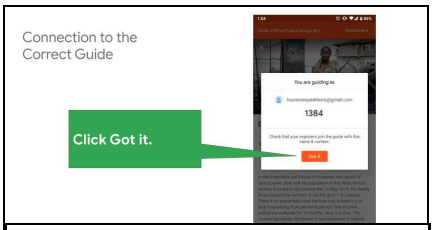
Note to Facilitators: You should know in advance of any passwords, etc. required to connect to the internet. Alternatively, you can have participants complete this section of the workshop with Tours that you have already downloaded to the devices in order to overcome the potential challenge of everyone connecting to the WiFi.



Viewing Options

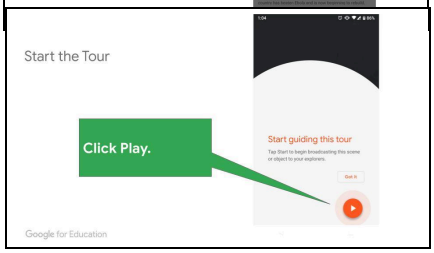
Once a Tour has been chosen and downloaded, you will notice the viewing options available - View, View in AR or VR, and Guide. Click "Guide" as this portion of the workshop is on Guiding a Tour.

This is a great chance to stop and ensure that everyone is following along and no participants are confused. A quick show of hands amongst participants will allow you to ensure everyone is on the same page.



Connecting to the Correct Guide

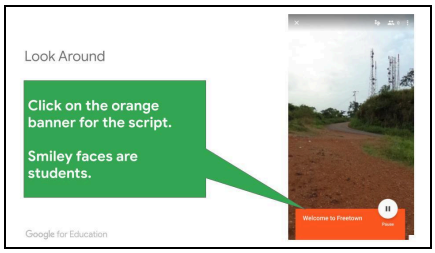
The Guide is provided with information - email address and a number - to ensure that students are connected to the correct guide. This can be helpful in instances where there are multiple guides in the room.



Start the Tour

Expeditions Workshop
Facilitator's Guide

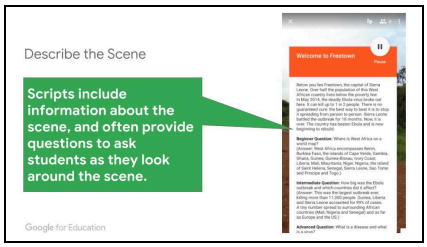
Tell participants that their Tour will not start until the Guide clicks the play button. As soon as they click play, the Tour will go live on their student's devices.



Look Around

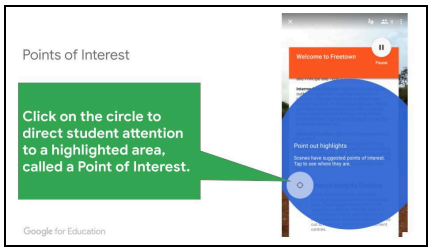
Show participants how to load up the script for the scene by clicking on the orange bar at the bottom of the screen. Show how when they turn their devices they can look around the scene.

Also point out how they will see little smiley faces all over their screen -- each smiley face represents a student, so the guide can see where students are looking. This is especially helpful when showing highlights. Note that right now, they will not see smiley faces because they don't have any explorers in their Tour.



Describe the Scene

Explain that there is a general script that overview each scene. This script should be read as students are looking around and exploring. We like to use the pause button after asking a question, to encourage students to put down their headsets for a moment and consider the questions.



Point out Points of Interest

Show participants how in addition to the script, they will find highlighted areas. To have the arrows and highlight circles appear on their student's devices, they just need to click on a highlight. It will turn orange after they click on it.

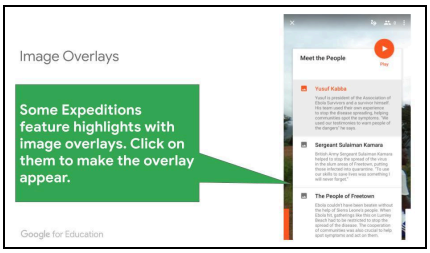


Image Overlays

Show how highlights that have image overlay look different. They have an image icon instead of a circle. Explain that when they click on one of these highlights, the image overlay will appear for students.

Annotate

Use the annotate feature to draw on the screen. Click on the squiggly line on the top right of the screen, then draw anywhere in the scene and participants will see your drawing live. Click reset to make the drawing disappear.

Expeditions Workshop
Facilitator's Guide

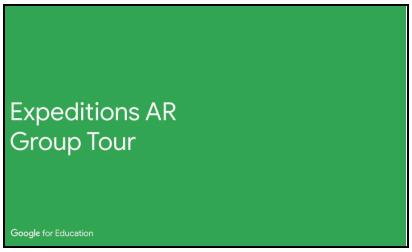
Go to Another Scene
Swipe left on the orange banner to go to the next scene. Click on pause to pause for students.

Show how to pause the Tour on the student's devices. Also, explain how you would swipe right to see the next scene in the same Tour.

Your Turn!
There are two options for this part of the workshop. You could potentially divide the participants into small groups, and have each member of each group practice taking their peers in their group through a Tour. This will require a little coordination of teams, to ensure that each group knows which Tour to join.

Alternatively, you could have one volunteer come up to the front and lead a Tour for the group.

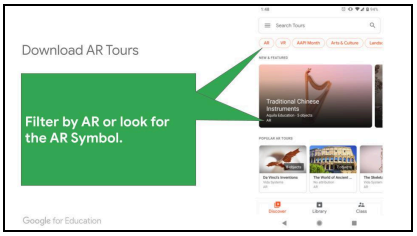
EXPEDITIONS AR



Expeditions AR
Now that we've had some fun with VR Tours, it's time to try out AR!

Augmented Reality allows us to see virtual objects in on our devices, within the space that we are in. It's a really great way to explain concepts visually to students and give them the chance to interact with objects that otherwise would be hard to understand.

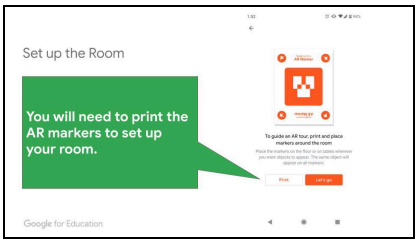
The basic premise of an AR Tour is the same as a VR Tour. The teacher selects a Tour and invites students to join. Each Tour includes several scenes, and each scene includes narration. The Guide has the ability to spotlight specific areas of the object to draw students' attention.



Download AR Tours
Filter by AR or look for the AR Symbol
Explain that finding AR Tour works the same as VR Tours. You can either search for AR objects, or search by topic and then look for the AR symbol on the bottom left of the Tour preview.

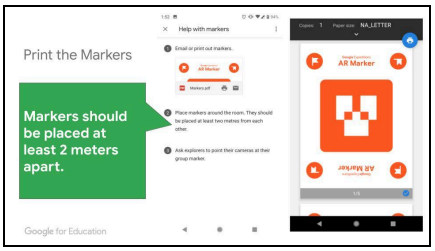
Expeditions Workshop
Facilitator's Guide

Have participants go to the Discover tab and search for an AR Tour and download it. We strongly recommend that you download several AR Tours onto the devices in advance of the workshop. You can select Tours that are appropriate for your audience. However, you might also choose to give participants the opportunity to find one that interests them.



Set up the Room

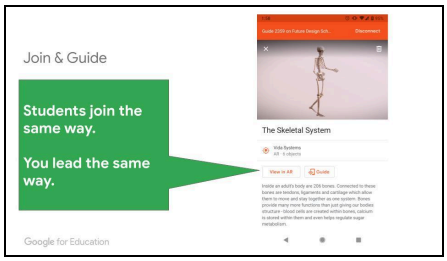
You will need to print the AR markers to set up your room. Participants will then see this screen when they attempt to launch the AR Tour. Explain that in order to have the AR objects appear in the room, the Guide needs to print the AR markers and place them around the room. This helps to keep things organized when you have many students in one room on an AR Tour. You can group students, or just use one marker for the entire class. The objects that appear are determined by the Tour that the guide is running from their device.



Print the Markers

Markers can be printed by clicking on Settings at the top left of the screen and then by clicking on "Help with markers". They can find the .pdfs of the markers. They do not need to be printed in color.

As the Facilitator, you should have these printed in advance of the workshop. In a few minutes, you will lead participants through an AR Tour and you will need the markers.

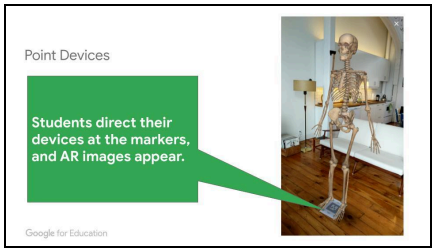


Join & Guide

Explain that students join the AR Tour the same way they did the VR Tour. The teacher interface is also the same.

At this point, you should load up an AR Tour for participants to join. You will place an AR marker or markers around the room, and as you walk through the next several slides, have participants follow along as explorers on your Tour.

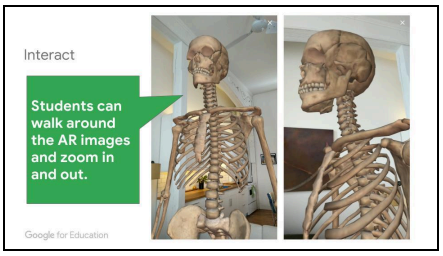
Note that if students are using selfie sticks, they will need to put their phones in their selfie sticks. Explain to participants that using selfie sticks allows students to see the images from more angles.



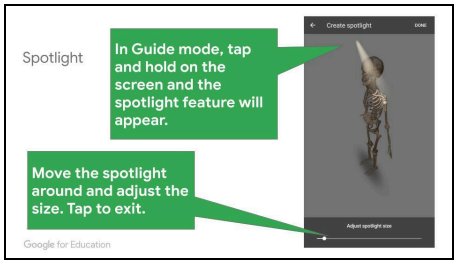
Point Devices

Expeditions Workshop
Facilitator's Guide

Students direct their devices at the markers, and AR images appear. Show how after joining the Tour, students will direct their devices at the AR marker, and the object will appear.



Interact
Students can walk around the AR images. As they move closer to the objects, they will be able to see them up close and inspect elements of interest. Have participants walk around the objects and view them from multiple angles. Explain how this allows a student to almost interact with an object that they otherwise would only see in 2D.



Spotlight
In Guide mode, tap and hold on the screen and the spotlight feature will appear. Move the spotlight around and use the slider at the bottom to adjust the size. When you have the spotlight the way you want it, tap "Done" and send it to students. Tap anywhere on the screen to dismiss the spotlight.

Now, use the spotlight feature to highlight an area of the image. Explain how as the Guide, you can adjust the size and position of the spotlight easily by just tapping and holding the screen.

Now, give participants a few minutes to explore the AR Tour. You can move to the next scene and read the narration. After a few minutes, pause the Tour.

If time permits, you can also invite one participant to come to take over as the guide using the guide device to take the other participants on an AR Tour.

Reflect...
How do you think AR will help to improve student learning? Can you think of one thing from your subject area that could be improved by the use of AR?

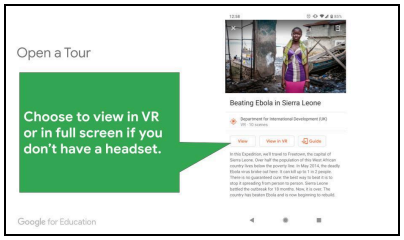
SELF GUIDED EXPEDITIONS

Self Guided Tours

Expeditions Workshop
Facilitator's Guide

What if students want to go on a Tour, and they don't have a guide? Or if you would like to explore a Tour on your own?

That's where Self-Guided or Solo Tours come in!



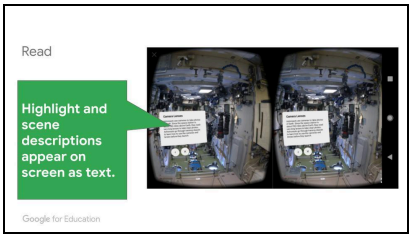
Open a Tour

As mentioned before, there are 3 different viewing modes in Expeditions. You can choose to view the tour in VR mode or in full screen mode if you don't have a viewer.

Explore

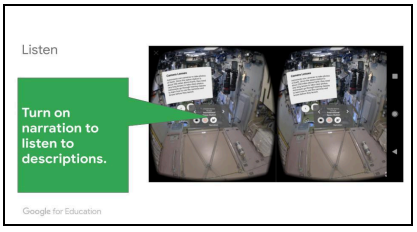
Note that if participants choose VR mode, they will use the button on the top right of their Cardboard viewers to navigate the scenes.

In order to navigate the scenes, participants must line up the little white dot on the screen with the item that you would like to select, then click the button on their VR viewer. This will make text boxes with options and navigation tools appear. For those using Daydream headsets, the controller can be used to navigate the scenes.



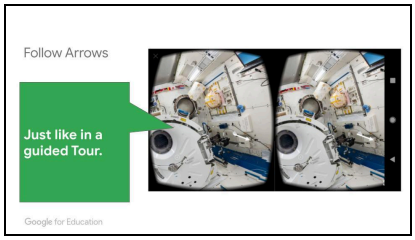
Read

When you hover over a scene, the description of that scene will appear in your view. You can scroll down to read additional text by hovering the white dot over the arrows below the text and clicking (again, headset must be removed).



Listen

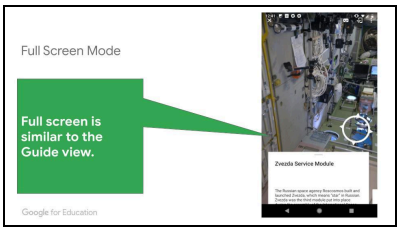
Alternatively, you can also turn on the scene narration. To do this, click on any text box in the scene. Another box will appear with three icons on it. The icon on the far left will allow you to toggle between scenes in the expedition. The icon in the middle will have the main scene information appear, and icon on the right will turn on and off scene narration. With narration on, you will be able to hear any recorded narrations that have been included in the Tour.



Follow Arrows

When you look around the scene, you will see white circles with a dot in the middle. Each of these represents

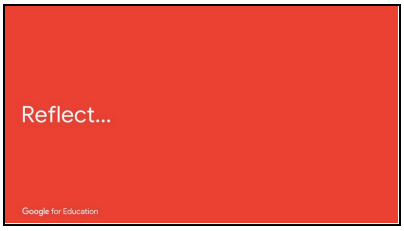
a point of interest in that scene. When you click on this highlight, a text box appears describing the highlight. If you look away, the arrows will appear on the screen and guide you back to the highlight. Click anywhere away from the highlight to turn off this highlight and continue exploring.



Full Screen Mode
If you do not have a VR headset, you can also explore each Tour in full screen mode. This will allow you to move your phone around and see the scene and highlights. The navigation is similar to Guide view. You will find highlighted areas below the scene description; click on them and the circle will appear in the scene on the highlight. Swipe right or left to switch between scenes.

Note that self guided Tours are also possible in AR.

Give participants time to explore self-guided Tours in VR and AR.



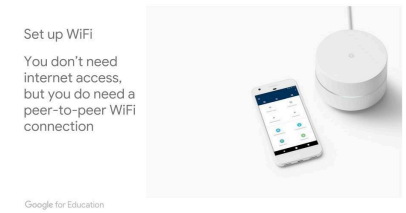
Reflect...
When do you think self-guided Tours would be helpful for students?

Tour Creator
What if you would like to take students on a specific Tour, but you can't find one that works? Google has received many requests from educators to have the ability to create their own Tours. In response, Google recently launched a new tool called Tour Creator. Tour Creator allows anyone to create their own VR Tours, using content from Google Street View, or by uploading their own 360 images. These tours currently live on Poly, not in the Expeditions app, but if you're interested in creating your own tours, check out Tour Creator!

SET UP

Initial Set Up
In order for your guided Tours to be successful, you need to ensure that you have a peer-to-peer WiFi network setup for all devices to connect to. We now will review what hardware and software are required to run an Expedition. We will learn how to set up the WiFi to ensure success.

Expeditions Workshop
Facilitator's Guide



Set up WiFi

You don't need internet access, but you do need a peer-to-peer WiFi connection
Explain to participants that you only need an Internet connection to install the Google Expeditions app, download a Tour, or explore a Tour on your own. You need a peer-to-peer Wi-Fi network to lead a Tour. A peer-to-peer Wi-Fi network connects the individual Expeditions devices to each other.

It is recommended that Expeditions always be run from an independent router (found in the Expeditions kit), not on your institution's existing WiFi network. Some Wi-Fi networks may not allow both peer-to-peer connections and an Internet connection and getting all devices connected can pose challenges. There are several ways to set up your peer-to-peer network.

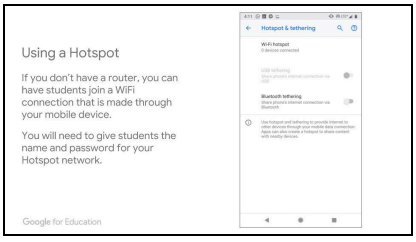
Using a Router

If your school or location already has a WiFi connection that allows peer-to-peer connections, you can skip this step. Otherwise, you will need to set up a WiFi network. Follow the instructions on your router.
To set up a new router for the Expeditions devices, you need its network information, which is usually found on a label at the router's base.

On this label, you find the router's:

Wi-Fi name or Service Set Identifier (SSID)
Wi-Fi or SSID key
Management URL, username, and password
Important: We recommend a 5 GHz network for the best experience. However, a 2.4 GHz network also works.

Connect to the router's network
On your computer, open the Network Settings.
Select the router's Wi-Fi name or SSID.
Enter the Wi-Fi or SSID key.



Set up the router
In your browser address bar, enter the Management login URL.
When prompted, enter the Management username and password.

Follow the manufacturer's instructions to complete the router setup.
Tip: For greater security, you can create a password using WPA2 during the setup.

Using a Hotspot

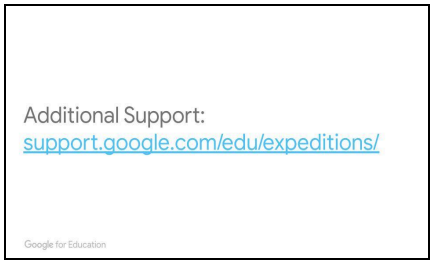
If you don't have a router, you can have students join a WiFi connection that is made through your mobile device. You will need to give students the name and password for your Hotspot network. Explain to participants that if your school doesn't have a Wi-Fi network, or if it doesn't allow for peer-to-peer networking, you can use an Android or iOS phone to set up a Wi-Fi hotspot.

Important: The number of devices that a hotspot can support varies depending on the device. Check your device's support information for more details.

You don't need to walk participants through these setup instructions, but you might want to have each participant get out their devices and ensure that they know how to set up a WiFi hotspot on their device. If anyone is stuck, you can walk them through these steps:

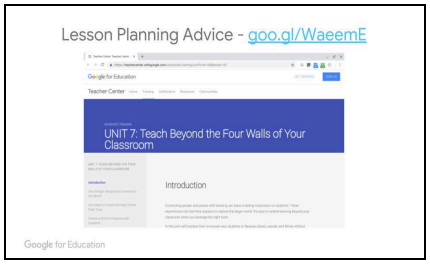
Set up a Wi-Fi hotspot using an Android phone
Go to Settings and then Wireless & networks.
Tap More .
Tap Tethering & portable hotspot.
Tap Set up Wi-Fi hotspot.
Create a Network name and Password, then tap Save.
Tap Portable Wi-Fi hotspot and tap On On to turn on the hotspot.

Set up a Wi-Fi hotspot using an iOS phone
Go to Settings.
Tap Personal Hotspot.
Next to Personal Hotspot, tap On On to turn on the hotspot.
Tap Wi-Fi Password and enter a new password.



Additional Support

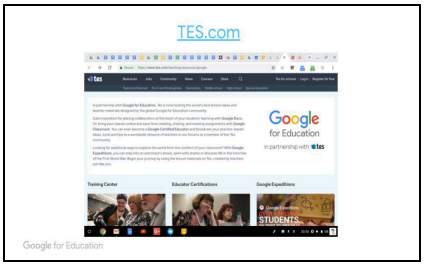
Tell participants that they can find addition help and support on the Google Expeditions support page.



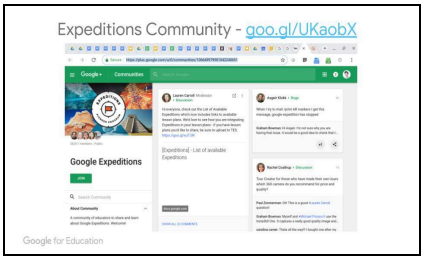
Lesson Templates

Expeditions Workshop
Facilitator's Guide

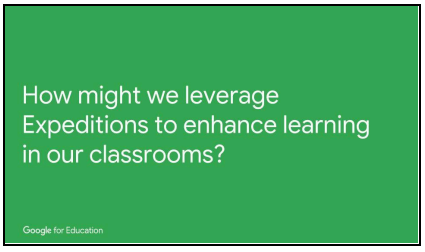
As you explore Expeditions, it's easy to see how this can be an exciting and engaging new instructional tool. However, how do you ensure these are meaningful experiences? How do you plan instruction that effectively takes advantage of a Tour? [This lesson on the Google for Education Training Centre]will help you learn how to plan for instruction that utilizes Google Expeditions - whether it's a standalone lesson or part of a larger unit, these are some strategies that will set you up for success.



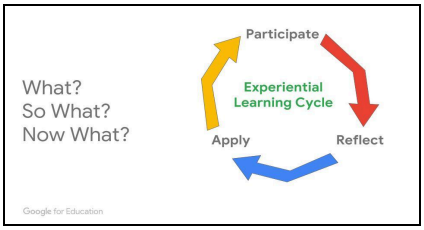
TES.com
TES—Teachers are creating lessons using Expeditions and uploading them to TES. To see the lessons, you need to log in to TES. If you're interested in creating your own lesson, use the template from the Training Center unit, and upload it to TES.



Expeditions Community - https://goo.gl/UKaobX
Tell the group about the Google Expeditions G+ Community. This is an incredible resource with over 28,000 members. It's a great place to skim and find ideas and inspiration and also to get answers to questions. The G+ community is very friendly and if you have a question or want tips or advice, use thing platform to ask your question.



How might we leverage Expeditions to enhance learning in our classrooms?
Now that we know what Expeditions can do, the question is, how we might leverage Expeditions in our own classrooms to enhance learning?

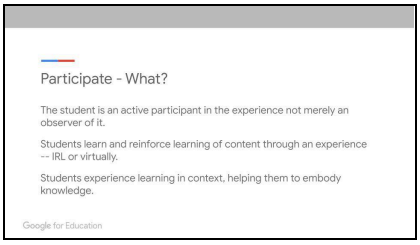


What? So What? Now What?
Teacher Talk:
Google Expeditions has the power to take students on experiences without leaving the classroom. This makes experiential learning more accessible and possible for anyone, anywhere.

But, experiences alone are not enough. True experiential learning involves a cycle of questions. It leads to ongoing inquiry through participation, reflection and application.

Effective experiential learning happens when we ask the questions What? So What? And Now What?

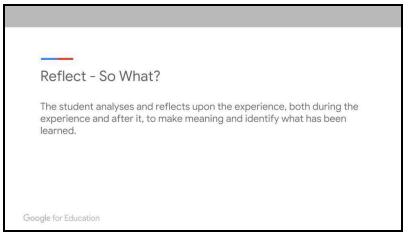
Expeditions Workshop
Facilitator's Guide



Participate - What?
Teacher Talk:
First, students actively participate in an experience.

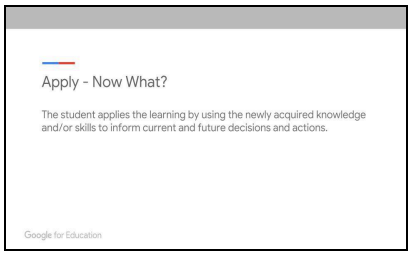
This could be in real life, or it could be virtual, but through this experience, students reinforce their learning of content knowledge and also gain new understandings and skills.

Students are learning in context, and are able to make connections between their learning and the world around them.

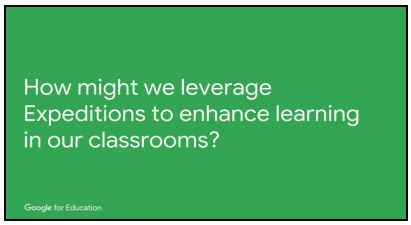


Reflect - So What?
The student analyses and reflects upon the experience, both during the experience and after it, to make meaning and identify what has been learned.

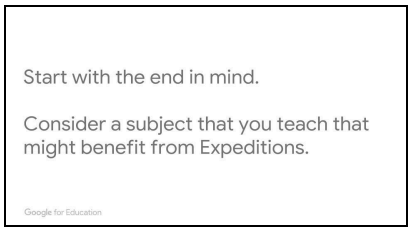
Teacher Talk:
Next -- either during or after the experience -- students reflect on their learning. They make meaning from their experiences and identify what they have learned.



Apply - Now What?
Teacher Talk:
Finally - and crucially - students apply their learning to new situations. They use their learning to make decisions, solve problems, ask further questions and inform future experiences.



How might we leverage Expeditions to enhance learning in our classrooms?
With this question in mind, we are going to consider how we might design a learning experience for our learners that leverages the experiential power of Expeditions.



Start with the end in mind.
Consider a subject that you teach that might benefit from Expeditions.

Before we can start to design a learning experience, we need to know what we are driving towards.

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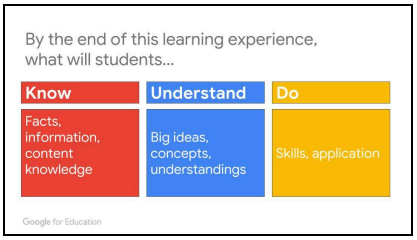
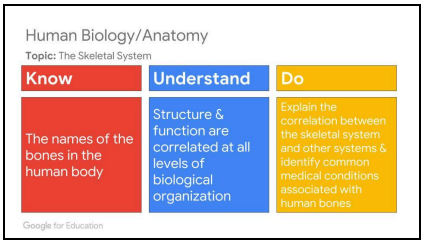
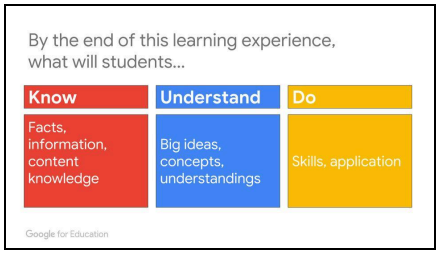
Take a moment and consider a course, subject or topic that you teach in your classroom, for which Expeditions could be leveraged.
(Give participants one minute to think quietly to themselves)



By the end of this learning experience, what will students...
Explain that we will be breaking down the learning goals into three categories of learning: what students will know (facts, information, content knowledge -- things that are not debatable); what they will understand (big ideas, concepts, understandings -- things that could be debated); and be able to do (skills and application of knowledge).

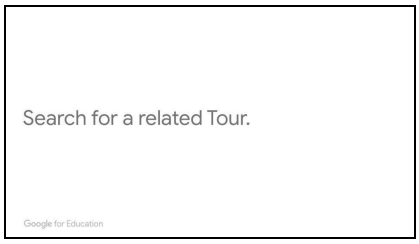


Human Biology/Anatomy
Topic: The Skeletal System
For example, if I were teaching a unit on Human Biology, I might have the learning goal of helping students understand the skeletal system. I want them to know the names of the bones in the human body, understand that the structure and function are correlated at all levels of biological organization and be able to explain that correlation and identify common medical conditions associated with human bones.

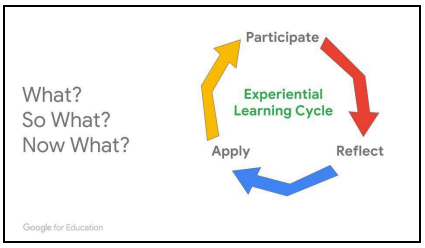


By the end of this learning experience, what will students...
Have participants write down on a piece of paper or a Google Doc their three learning goals for this learning experience that they are creating.

Tell them that they don't need to worry yet about how they will teach these things - this is just about setting the goals!



Search for a related Tour.
Once you've established these objectives, you're ready to find the Tour that best meets those goals. Are you trying to expose students to new cultures? Are you giving your class a chance to explore career options? Are your students engaging in an inquiry project around geometry in ancient architecture? For each essential question or lesson objective, there are a myriad of expeditions to choose from! Try to narrow it down to a few that will provide comparisons and powerful discussion points.



Experiential Learning Cycle

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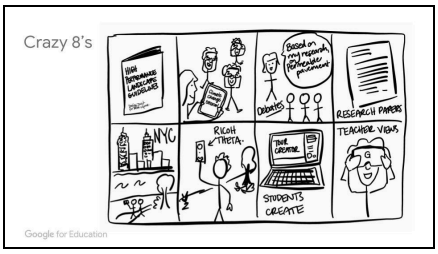
As a reminder, the learning experience that you design next should incorporate elements of experiential learning - consider what students will experience as well as how they will reflect and apply their learning.

Let's Brainstorm!
Now we have learning goals, and some ideas for where/what students might experience. Let's expand upon those ideas through brainstorming.



Crazy 8's
To generate ideas for our challenge of leveraging Tour Creator to enhance learning, we are going to brainstorm 8 different ideas for our learning experience.

For this activity, everyone needs their on legal size (8.5" x 14") piece of paper. This is an individual activity, even if you are working in a group. Fold your paper into 8 squares.

In each of those 8 squares, you are going to draw out one idea for your learning experience leveraging Tour Creator.

You'll see in my example here that I started with the content knowledge, students would read and learn about the principles of High Performance Landscapes.

Next, I thought that we could take students on a virtual tour to help them understand climate change, and how landscapes were helping to mitigate the effects of climate change. This tour would be teacher created using 360 images found on Google Street View.

To build an understanding of the social and ecological impacts of landscape design, students would engage in a flip debate about the benefits of adhering to high performance landscape guidelines.

Next, students would conduct more research into landscape design in cities around the world.

Students could go on a field trip and visit New York City to see real landscapes that have been designed to mitigate the effects of climate change.

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On their field trip, students could capture 360 images of various sites.

They would use these images to create their own tour of landscape architecture in New York City. In their tours, they would apply their knowledge and understanding to analyze the application of sustainable design.
Finally, they would share their tours with the teacher, who could assess their knowledge and understanding.

You'll notice that my examples went in somewhat chronological order. Your ideas don't have to follow a sequence. This activity is all about generating ideas, so any ideas are good ideas at this point.

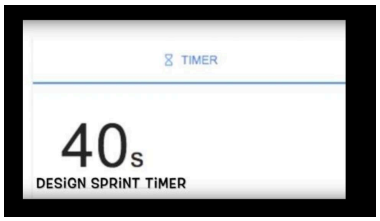
But don't start yet! There are some rules that we need to go over in order to play Crazy 8's.

First, you must draw with a Sharpie. We don't want your ideas to be too precious. The goal is to get your ideas down, and not second guess yourself.

Second, you must draw your ideas. You can use some words, but try to primarily use images for your ideation. This will allow you to convey more information quickly, and it also allows you to visualize your ideas.

Finally, you are only going to have 40 seconds per box to come up with your idea! We limit your time so that you are forced to think quickly and put down your first ideas. There is no judgement here, it's all about getting as many ideas on paper as possible.

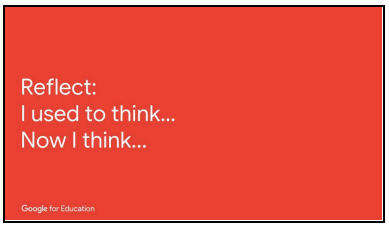
Is everyone ready? When you hear the first sound, you can start on your first idea!



Timer
The timer will start automatically and sound every 40 seconds. As participants are brainstorming, remind them that any ideas are good ideas and that they should be thinking about how they can leverage Expeditions in their classrooms for experiential learning.

When the timer is up, remind everyone to put their sharpies down.

Optional: if time permits, this could be an opportunity for participants to share one of their ideas with their buddy from the icebreaker activity. This is a great way to get the energy up in the room, and gives people a chance to get up and move around before the dig into creating their tours in the next segment of the workshop.



Reflect:

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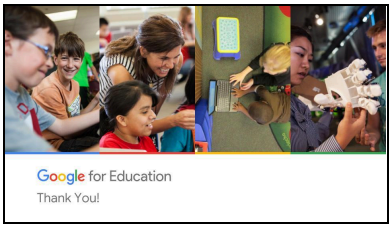
I used to think...
Now I think...
Now that we've had a chance to use the Google tools and have gone through the design process, let's reflect on our experiences. In your group, share 1 thing you used to think, and how your thinking has changed now.

Before you go...
(insert link to survey)
Before you close the workshop, explain to participants that Google is still making iterations on Expeditions. Engineers and product teams at Google are constantly seeking feedback from their users to make the products more useful to you.

Please take two minutes and complete this very short survey before you leave today. This will allow Google to learn from you wishes and continue to make Expeditions even better for teachers and students!



Thank You!
Close out the workshop by thanking everyone for coming. Remind them to get out there and try their ideas, because they are experience designers, and their students are ready to learn!

Inspirational use cases to connect to curriculum

Here are some ideas that we have collected from educators who are using Expeditions in various ways in their classrooms to enhance student learning. You may choose to share some of these ideas with participants, instead of or in addition to those examples found in the slide deck.

Subject Area/Topic	Science: Digestion	
Know	**Understand**	**Do**
Various nutrients and how they are broken down in our digestive system.	That all animals have a digestive system that helps us turn food into energy.	Identify the parts of the digestive system and describe their functions
Use of Expeditions		
After learning about nutrients and having a discussion about how animals break		

down food into smaller molecules for energy, students go on the Tour called "The Digestive System." The Tour helps them to visualize the various parts of the digestive system, and the guide script walks students through important information about their functions. Students compare mechanical and chemical digestion, and learn about specific enzymes that breakdown food. The Tour is complemented by additional resources and websites.

Subject Area/Topic	History: The Palace of Versailles	
Know	**Understand**	**Do**
Pertinent facts about the Palace of Versailles, including when it was built, who it was used by, and the style of architecture.	That the palace of Versailles represents a specific period of time in the French Aristocracy, when not everyone has equal access to resources, knowledge and education	Apply their learning about the Palace of Versailles to make compare and contrast characteristics of the French Aristocracy with today's society
Use of Expeditions		

Subject Area/Topic	Math/Physics:	
Know	**Understand**	**Do**
That CERN is located 100 meters below ground and contains a 27km underground tunnel used for the study of protons, neutrons, quarks and neutrinos and Higgs boson.	That colliding tiny particles at high speeds helps researchers to understand how the universe started and what it is made up of.	Apply their knowledge of the Standard Model to predict what will happen when nano-particles collide.
Use of Expeditions		
Students are learning about particle physics – the study of the fundamental constituents of matter. After learning about the Standard Model, which explains that everything in the universe is found to be made from a few basic building blocks called fundamental particles, governed by four fundamental forces, students go on		

the CERN Tour. Through the Tour, students are able to see the massive scale and scope of the work at CERN and to visualize the extent of the research done here. They will learn about CERN projects such as Alice, Atlas, CMS, and the Large Hadron Collider Tunnel. After going on the Tour, students will conduct experiments that mimic the process of particle collision to better understand the Standard Model Theory.

Subject Area/Topic	Careers/Guidance: Career Exploration	
Know	**Understand**	**Do**
That there are a variety of careers paths in STEAM, from engineering to costume and set design.	That career paths are not linear, and that there is no single way for an individual to achieve his/her/their goals.	Apply their research into different careers to make informed decisions about post-secondary choices, ranging from college to workplace
Use of Expeditions		
Students are learning about careers in STEAM. The teacher introduces the concept that most career paths are not linear, and that every individual has their own unique course to get to their chosen careers. Students then open the Expeditions App and find at least three STEAM related career exploration Tour. Students choose each Tour based on interest, and then go on a self guided Tour to learn more about each career path. Throughout the Tour, students complete a reflection on a Google Doc that explains the career opportunities that they have learned about. At the end of the Tour, students complete a jigsaw activity to share the careers that they learned about with other students.		

Subject Area/Topic	Visual Art: The Inventions of Leonardo Da Vinci	
Know	**Understand**	**Do**
The types of inventions and artistic projects that were created by Leonardo	That Leonardo was much more than a painter, but also a curious explorer of the world around him and the human condition	Apply Leonardo's "Renaissance Man" approach to their own work through a genius hour project
Use of Expeditions		

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Students are learning about the Renaissance period in art history. After studying the great works by Leonardo, Michelangelo, Donatello and other artists, they begin to develop an understanding of the concept of the "Renaissance Man" as someone who was skilled and knowledgeable in many disciplines, not a singular subject. To develop further understanding of Leonardo's foray into areas such as math, science, engineering, and psychology, students go on an AR Expedition. At the end of the Tour, student conduct further research into the world's great inventors. Then, they each choose a topic that they would like to learn about, and a challenge faced by humans related to that challenge. Next, students use the design thinking cycle to develop an invention that could solve their chosen challenge.

Subject Area/Topic	Geography: Natural Disasters	
Know	**Understand**	**Do**
What causes tornadoes to form	How climate change could create conditions for increased natural disasters such as tornadoes and hurricanes	Apply their understanding to create solutions that will help mitigate the effects of climate change
Use of Expeditions		
Students are learning about natural disasters and their causes. They learn about wind and weather patterns, and study the causes of extreme weather events such as tornadoes, hurricanes, and tropical storms. Students then go on an AR Tour, which helps them to understand a funnel cloud, by viewing from multiple angles. With the help of the guide's script in the Tour, the teacher can explain how weather patterns are affected by temperatures and wind. Students then make connections between the rising temperatures in various climates and also how ocean temperatures contribute to extreme weather events. Using design thinking as a framework, students develop empathy for those affected by extreme weather events, define challenges related to the mitigation of climate change, and then ideate potential solutions that will help those impacted by climate change and/or help to reduce human impact on our environment that contributes to climate change.		

FAQ's/Additional Support

Troubleshooting

Can't Connect to Explorers

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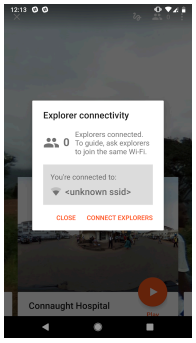
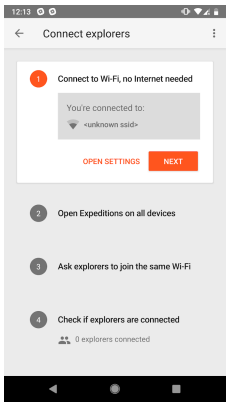
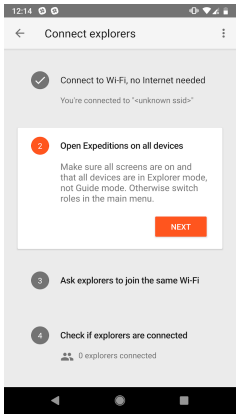
Solution	Screenshots
This is usually caused by WiFi connection issues. Either you are not connected to the same network, or that network does not allow for peer-to-peer connections. When this happens, an error box will appear with a prompt to troubleshoot. Click on the box. A new pop up box will appear. In this box, you will see how many Explorers are successfully connected to the Tour. You will also be able to see what WiFi your device is currently using. If not all of your explorers are connected, click on Connect Explorers. **Check WiFi** First, ensure that you are connected to the correct WiFi point. Click on Open Settings to open WiFi settings and choose another WiFi network if necessary. **Ensure Students are in Correct Mode** Another common error when encountering connection issues occurs when students are accidentally in Guide mode or Solo Explorer mode, rather than in Join mode. Ask all students to check that the Join button at the bottom right of their screens is highlighted in orange. **Ensure Students are on Correct WiFi** Next, ensure that all students are connected to the same WiFi as you. **Ensure WiFi is working** If your network requires user authentication or sign in to use the network, then you might need to set up a new WiFi connection point (see setting up WiFi above) **Try Again** After you have checked all of these settings and made necessary adjustments, try again to start your guided Tour. See if the problems are corrected.	  

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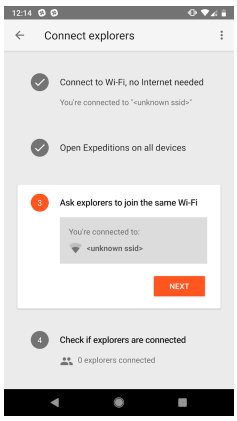
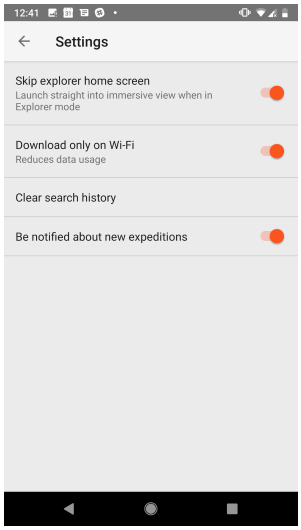
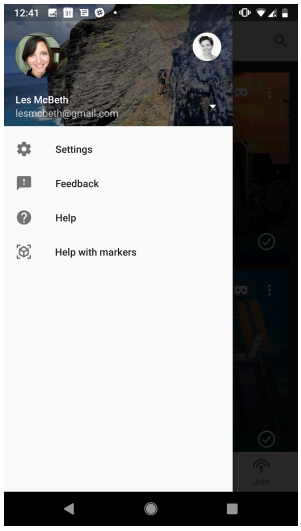


Switching to Solo Mode

Problem	Screenshots
If you or your students are having trouble conducting a solo Expedition, it could be caused because the default Explorer mode is turned off. When you click on a Tour, it should automatically give you the option to go on a self guided tour. If this doesn't happen and you go straight into guide mode, you should change your settings. Click on Settings and then turn on "Skip Explorer Home Screen." This should rectify the problem.	 

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Additional Support:
support.google.com/edu/expeditions/
Tell participants that they can find addition help and support on the Google Expeditions support page.

First Day of Expeditions
Find inspiration, videos, extra help and tips and tricks from teachers on First Day of Expeditions in the Google for Education Teacher Center.