Access Your Potential Essential Eight Tech Experiences

Virtual reality (VR) lesson plan
Virtual reality (VR)—Lesson plan

**Objective:**
Students will explore the emerging technology of virtual reality (VR). They will use innovative thinking and teamwork to imagine how VR might be used to improve our lives.
Learn more about the Essential Eight [here](#).

**Audience:**
High school and older.

**Essential question:**
How can VR technology be used to improve our lives?

**Materials:**
- “Virtual Reality” visual handouts—1 copy per student.
- “Designing Your Own VR Experience” team design challenge handouts—1 copy per small team of 3–4 students.
- Whiteboard markers.
- Enough Oculus Go VR headsets and controllers to distribute one set of equipment to each group of 3–4 students
  - Oculus Go VR headsets and equipment can be requested from your local office [AYP Committee](#).
  - Set the headsets and controllers up on a table at the front of the classroom so that the students can see them as they enter the room. This will help build excitement and anticipation around the possibility of them getting to use the equipment.
- VR headset cleaning supplies.
- Videos.
  - Consider sharing this [introductory video](#) on the Essential Eight Technologies (5:03 in length) – Password is ‘E8’
  - You can share a selected segment of a video from YouTube of funny reactions from people using VR for the first time—for use as a supplemental activity if time allows (see the “Wrap Up and Supplemental Activities” section). (**Note:** Provide video links to the teacher ahead of time and ask the teacher about school video policies. See the “On showing videos in class” callout in Activity 1 for more information):
    - “Funny VR Reaction Fails”
      - **Only** show the segment between times 5:16—6:27
Pre-visit prep:

- **Note:** It is highly recommended that you spend time interacting with these items and have a firm understanding of how they work before working with students.

- Make sure all devices and tech items are **fully charged**

- You **MUST** pre-load VR content onto the Oculus Go headset prior to the lesson. Refer to the "Options for Content on Oculus Go" section below for suggested apps to download prior to your visit. Please watch this [unboxing video](#) for set-up tips. Devices will not need Wi-Fi during the lesson if they are completely set up with applications and the content is pre-loaded.

- **Reminder:** Students must be 13 years old to use the headset, grades 8–up. So please check with the school to confirm the ages of students you will be working with.

- Work with the teacher ahead of time to **figure out a room arrangement** where the students can gather into groups of 3–4. These groups will try out the VR headsets together in Activity 2 and carry out the group design work together in Activity 3. Knowing their students, the teacher may also want to pre-compose the groups in order to get the most out of the activity and minimize disruptions.

- Set up at least a few of the headsets with the **glasses spacers** to accommodate students with glasses. Advise the teacher that they may want to group the kids with glasses around these headsets.

- Gather a few interesting recent stories of VR use or technology development from the news in case there is time to share them during the lesson.

- Print necessary **handouts**
## Options for content on Oculus Go

<table>
<thead>
<tr>
<th>App name</th>
<th>Video name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oculus Videos (travel)</td>
<td>Born in China</td>
<td>Learn about pandas and what we can do to save them (1:40)</td>
</tr>
<tr>
<td></td>
<td>protecting pandas</td>
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<tr>
<td></td>
<td>Elephant day</td>
<td>See baby elephants re-integrate into the world after they are born at an orphanage (5:40)</td>
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<tr>
<td></td>
<td>William Briscoe Photography</td>
<td>Experience a lunar eclipse in Alaska (1:10)</td>
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<tr>
<td></td>
<td>lunar eclipse, alaska style</td>
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<tr>
<td>Adventures in space</td>
<td>Adventures in space</td>
<td>The student beams into different parts of space to learn about the solar system, black holes and other galaxies (ranges by video 5–10 minutes)</td>
</tr>
<tr>
<td>PetLab</td>
<td>PetLab</td>
<td>Create, train and customize magical creatures and run a magical creature pet shop (no time limit—interactive)</td>
</tr>
<tr>
<td>iDoctum Our Solar System</td>
<td>Our solar system</td>
<td>An interactive experience where students learn about each planet in our solar system (no time limit—interactive)</td>
</tr>
<tr>
<td>Samsung VR (download each video segment prior to visit)</td>
<td>Peak walk at glacier 3000</td>
<td>Takes you on a walk across a bridge in Switzerland while you are surrounded by mountains (55 seconds)</td>
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<tr>
<td></td>
<td>Wingsuit Rio de Janeiro</td>
<td>Wing jump off a cliff where you will see the beautiful ocean view of Rio de Janeiro (1:48)</td>
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<td>Gabriel Lott</td>
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<tr>
<td>Discovery VR (download each video segment prior to visit)</td>
<td>Journey to the edge of space</td>
<td>You will travel from earth up towards the sky (5:15)</td>
</tr>
<tr>
<td></td>
<td>The Lion Whisperer</td>
<td>See one man who has created a bond with a group of lions (1:49)</td>
</tr>
</tbody>
</table>

**Lesson length:** 45 minutes
Considerations for facilitating virtually (via Google Hangout, WebEx, or Skype)

Much of this lesson can be delivered virtually via Google Hangout, WebEx, or Skype. The educator you are working with may have a preference on technology, so defer to them. Benefits of this include schedule flexibility for both the classroom and facilitator and elimination of travel time. Keep in mind the following elements when transitioning this lesson to a virtual format:

• Start off with a clear personal introduction—share with the students where you are (generally) geographically and some detail about your job and career journey. This will help develop a personal and engaging connection with the classroom. Also consider inviting a colleague to join you in teaching the lesson!
• Make sure the video/sound is working well up-front!
• Share the printable handouts with the teacher in advance, as they will need to print and distribute on your behalf. Discuss with the teacher in advance what you will need and the timing on when to distribute the materials
• Edit Activity 2—Since the students will not be using the VR headsets in person, share YouTube videos of various VR experiences in action with the class. You can continue from there with the questions listed in the curriculum
• Don’t be afraid to engage with the students by asking questions as you talk through the material and show videos!

Lesson Outline

Introduction (1 minute)

• Greet the students and introduce yourselves. Explain that you’re from [Company]. [Insert quick sentence or two about the Company]. Explain that you’re here to talk with them about some of the incredible emerging technologies that are changing our lives

• Let them know that today we’re going to focus on the exciting world of VR
Activity 1: “What is VR?” (3 minutes, large group activity)

- Overview: Before telling the students what Virtual Reality is, get them thinking and talking right away. Engage them in conversation and explore their thoughts on what the word “Virtual” means:

  - Ask the students if they know what “VR” stands for. Most likely someone will know that it stands for “Virtual Reality.” Ask them to pull those two words apart and focus on the first word. “What does the word ‘virtual’ mean?” Tell them that you aren’t looking for a dictionary definition, but rather what they think it means.

  - Take a few ideas from the students. After each suggestion from a student, simply say, “Thank you!” Don’t affirm or disapprove of any suggestion so as not to increase students’ concerns about being wrong or about making a contribution to the conversation.

  - You can sum up their ideas and definitions with something like, “Virtual’ means something that seems real, but isn’t.’ So ‘Virtual Reality’ is a simulated environment created by designers, educators, and computers. You can interact with these environments using special equipment which blocks out your view of the real world and transports you into another world that seems real, but isn’t.”

  - To finish up this Activity, pass out the “Virtual Reality” visual handout and walk through it with the students. Quickly cover:
    - Definition of Virtual Reality.
    - Uses of VR.

  - As you go over the handout, be sure to point out thoughts that the students already covered, which will help them feel heard and validated.
Virtual Reality

What is VR?
Virtual Reality is a simulated environment with which you can interact using special equipment. The headset blocks out your view of the real world and transports you into another world that seems real, but isn’t.

What is VR used for?
VR can be used for engaging entertainment, realistic trainings, exploration of microscopic or make believe worlds, and more:

- Play immersive games
- Conduct experiential trainings and simulations, especially ones that are too dangerous or expensive in real life
- Visit remote locations like foreign countries, the bottom of the ocean, or other planets
- Interact with other users from around the world in the same environment
- Be in the front row of a concert or in the middle of a sporting event
- Improve treatment of anxiety, PTSD, and phobias

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Activity 2: “Let’s get virtual” (25 minutes, small group activity)

- Overview: Give all students some time to experiences interacting with a Virtual Reality world.
  - Note: Be sure to brief the students on how to properly use the headsets and go over the Activity instructions before you distribute the headsets to the groups. If you distribute them first, you’ll most likely have a hard time keeping the students’ attention for the instructions.
  - Ask the students if they’d like to “get virtual” and try out using a Virtual Reality headset. Most likely their response will be a resounding “YES!”
  - Tell the students that they are going to get a quick taste of what it’s like to explore the world of virtual reality. Let them know that they will have 5 minutes each to explore a few of the preloaded apps.
- Tell the students that today they will be using the Oculus Go, a VR system known for being highly experiential and easy to use.
- Give them a quick tutorial on how to properly put on and adjust the headset, including special instructions for students with glasses. Also show them how to use the controller and how to properly clean the headset. Let them know that each student is responsible for cleaning the headset after they use it.
- Use the table in the “Pre-Visit Preparation” section at the beginning of this lesson plan to go over their options for interaction and ask them to begin thinking about where they’d like to go when it’s their turn.
- Now ask the teacher to form the students into their pre-composed groups of 3–4 while you distribute a headset, controller, and cleaning supplies to each group. Be sure to instruct the students not to handle the headsets until you tell them to. Let them know that you’ll run the exploration time in 5-minute rounds. When their time starts, they should:
  1. Put on the headset and practice using the controller for a few seconds
  2. Look at the menu of experience options, choose one that looks interesting, and select it with the controller
  3. They can explore that experience for their entire time, or go back to the main menu to explore others.
- Throughout the activity, ask the students who are using the headsets to describe to their fellow group members what they are seeing, hearing, and feeling. Ask the students who are not using the headsets to observe the user and note the user’s emotional response. These tasks will help keep the students in the group engaged when it is not their turn.
- Set a timer for 5 minutes and tell the students that round 1 will now begin. You’ll need to circulate during each round and help troubleshoot and guide the students through getting the most out of their time.
- As the 5 minutes is winding down, let the students know that their time is almost up. At the end of the round, remind the students to clean their headset before passing them to the next student. Begin round 2 and again set the timer for 5 minutes. Keep working in 5-minute rounds until all students have experimented with using the headsets.
- Once you’ve gone through all of the rounds, work with the teacher to collect all of the equipment.
- Hold a quick debrief before moving on. Ask them questions like, “What was that like? How real did it feel? What was your favorite part of the experience? What was challenging about it?”
Activity 3: “Designing your own VR experience”—Team design challenge
(10 minutes, small group activity)
• Overview: Have the students share their ideas for how using VR can help solve problems.
  - Remind the students that, as we saw before, VR can be used for many different things such as entertainment, education, and communications. Tell the students that it’s now time to put their innovative thinking and creativity skills to the test. Tell them that their challenge is to work in the same small teams to quickly design an innovative, experiential VR app to help solve a problem within a particular setting, such as health care, transportation or exploration of hard to reach places.
  - Tell them that the capabilities of their app will need to match the problem it’s designed to solve.
  - Tell them to consider the purpose of their app, and then create a design that serves that purpose well.
  - Read the challenge out loud to the teams. Let them know that they will have only 15 minutes to design their VR apps and develop their pitch presentations.
  - Pass out the “Designing Your Own VR Experience” handout (see below) as well as sheets of paper (or space on their whiteboard) and markers for them to create their presentations. Then have them get to work!

Activity 4: “Innovation presentations” (5 minutes, large group activity)
• Overview: Have the students share their ideas for using VR to help solve problems.
  - Have the teams quickly deliver their presentations.
  - After each presentation, quickly highlight particularly innovative thinking and problem solving.
  - Tell them that all of their ideas and designs are creative and worthy of being made a reality.
Wrap up and supplemental activities (1 minute)

- Point out that innovative companies are working with clients to combine VR technology with other emerging technologies (the rest of the Essential Eight—Drones, Augmented Reality, AI, Blockchain, Robotics, The Internet of Things, 3D Printing) to solve big problems around the world. The combining of VR technology with other emerging technologies is called convergence.

- Remind the students that VR is already a part of their lives. Some of them may even have VR headsets at home. Ask them to watch for VR being used in media and real-life situations. Encourage them to check out more videos of VR and the amazing things it can do and to consider whether they have any further ideas of ways to use VR in their lives or to solve more problems. Remind them that the world of VR is only getting bigger, and it will need clever designers and developers like them.

- Also encourage them to share at least two things they learned or figured out today about VR with friends or family.

- Thank the students for playing along and working with you to explore the exciting world of Virtual Reality. Tell them that you’re impressed by their ideas, their creative problem solving, and their teamwork.

- If you have extra time, you can:
  - Have students continue to explore the apps on the VR headsets.
  - Have the teacher show a selected segment of a video from YouTube of funny reactions from people using VR for the first time. This will also help the students understand the immersive and emotional impact that VR can have.
On showing videos in class:

Video policies vary from school to school. Check with the teacher ahead of time to make sure showing videos and using a channel such as YouTube are allowed at their school. Have the teacher preview and approve the videos ahead of time. Then have the teacher queue up the videos and play them on their equipment (rather than you showing them).

Also be mindful of ads and popups. Encourage the teacher to mute and block the video during any ads and turn off any popup ads as soon as they emerge or use a popup blocker.

YouTube example video:

- “Funny VR Reaction Fails”
  - Only show the segment between times 5:16—6:27
  - The segment begins with an elderly woman in a teal shirt sitting in a chair, and ends with a young man wearing a white shirt falling down in a kitchen
Designing your own VR experience

Team design challenge

Your team’s challenge:

1. Think about how you might use an experiential VR app in **Entertainment** (including gaming, sports, and live events such as concerts), **Healthcare**, or **Exploration of hard to reach places**.

2. Identify a **problem** within that industry that you think an innovative VR app could help solve. This problem could be in your community or school, or it could be somewhere else in the world.

3. Work together to **design a VR app** that can help solve that problem.

4. Create a **presentation** to share your VR app idea. Be sure to include the following:
   - Tell us what **problem** your app will help solve.
   - Create **mock-up drawings** of what your app looks like from the user’s point of view. Also list the app’s capabilities and unique features.
   - Tell us **who** your VR app will benefit. Whose life will it make better?

5. You will have only **1 minute** to give your presentation, so be brief!
Thank you