

Lesson Plan

IMVR / HHVR LESSON PLAN

Operation: Safe Planet

Learning Area	Geography	Kit	Lumination Learning Lab or IMVR Kit + VR/AR Creation Kit
Year Level	Years 7 & 8	Duration	2x 60 to 90-minute Lesson

Introduction/Description

Students are introduced to the concept of risks, hazards, and disasters in extreme natural events through immersive learning experiences.

Learning Intentions

This lesson aims to help students develop disaster resilience through learning about extreme natural risks, hazards, and disasters, and developing appropriate responses to these extreme natural events.

Part 1 of this lesson introduces the concept of risks, hazards, and disasters to students in an immersive learning environment. Students will empathise, define, and ideate based on their immersive learning experiences.

Part 2 of this lesson enables students to consider and create responses to risks, hazards, and disasters using immersive technologies. Students will develop and share ideas that will help to address a chosen extreme natural event issue.

Task Summary

Part 1

Students will experience different extreme natural risks, hazards, or disasters using immersive technologies as part of an empathy exercise in the design thinking framework. They will then reflect on their immersive experiences in order to define an issue that they would like to focus on and ideate potential solutions to reduce risks and hazards to avoid disasters and/or how to respond to disasters.

Part 2

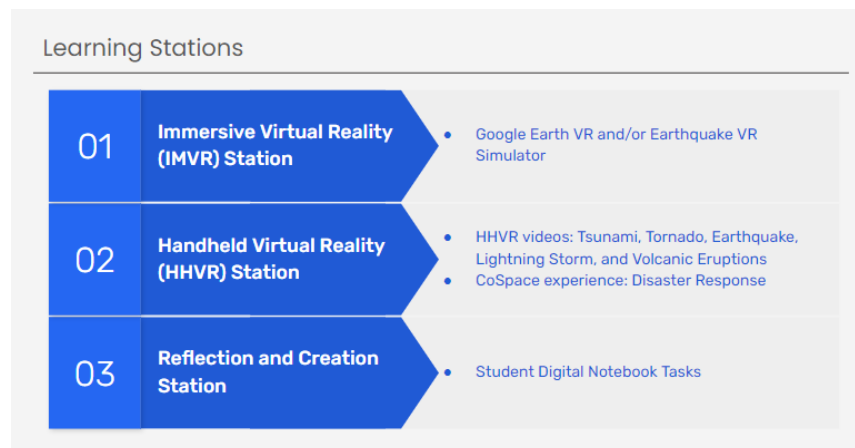
Students will create a rapid prototype of their potential solution to their selected issue addressing a risk, hazard, or disaster. They will also test and reflect on their solutions based on feedback.

Preparation

To help prepare for this lesson, please make sure that:

- All IMVR devices (batteries and controllers) and HHVR devices are charged.
- All apps are installed and working on your devices.
- IMVR apps are tested to familiarise yourself with the controls and flow of the experiences.
- All videos are reviewed to make sure that they are appropriate for your site.
- Students have some background in the topic to be covered.
- Students are familiar with VR Safety Rules and Learning Stations guidelines.
- For Part 2, students have some background knowledge and skills in using Tinkercad and/or CoSpaces.
- Students have a copy of the [Operation: Safe Planet \(Student Digital Notebook\)](#) to work on in their own devices.
- If necessary, put students in small groups, with each student working with a partner on the IMVR station. One group of students may use the headset and the other group would be the collaboration partner. They may swap roles during the lesson or during another lesson, if IMVR experiences are spread out over two or more lessons.

These are the suggested Learning Stations for this lesson:



Resources

Hardware:

- Presentation board (Smart board, white board with projector, etc)
- Immersive Virtual Reality (IMVR) headsets - Available in all Lumination Learning Labs and/or as part of the Lumination IMVR Kit.
- Handheld Virtual Reality (HHVR) headsets and devices - Available in the Lumination AR & VR Education Kit.
- Computers / Laptops / Tablets - For student use.

IMVR Apps*:

- [Google Earth VR](#) (Free) - Immersive Virtual Reality experience that enables students to travel to various locations.
- [Earthquake Simulator VR](#) (\$) - Experience a short earthquake and fire simulation while learning functional survival techniques.

VR Videos:

- [Tsunami in VR](#) (4.10) - Experience a tsunami and the destruction it can bring in this VR experience.
- [Tornado in VR](#) (0.35) - Experience a tornado in an immersive environment.
- [Earthquake in VR](#) (1.00) - Experience an earthquake simulation with different magnitudes.
- [Lightning Storm in VR](#) (1.05) - Experience what it's like to be in a lightning storm.
- [Volcanic Eruption in VR](#) (1.00) - Experience a volcanic eruption in this immersive simulation.

Teaching Materials:

- [Operation: Safe Planet \(Teaching Deck\)](#) - Slide deck that may be used for teaching the topic.
- [Operation: Safe Planet \(Student Digital Notebook\)](#) - A digital notebook that students can use to record their reflections and ideas.

Additional resources for Part 2:

Apps:

- [CoSpaces Edu](#) - For creating AR/VR experiences. Teachers and students may use the free version for this lesson.
- [Tinkercad](#) - For designing an invention or innovation as a response to a risk, hazard, or disaster.

*These apps are available via Steam VR.

Other Learning Areas

N/A

Learning Sequence

1

Introduction (10 mins)

As a class, ask students what they think a Safe Planet should be. (Slide No. 2 in [Operation: Safe Planet \(Teaching Deck\)](#)). Then, ask: "What makes a planet feel unsafe?"

Review what students know about Risk vs Hazard vs Disaster (Slide No. 3).

- Risk - The likelihood or possibility that an area or a section of the population will be negatively affected by a hazard.
- Hazard - A dangerous situation that poses a threat to human life.
- Disaster - An event that actually harms human life and/or property, which disrupts social activities.

Tell students that in this lesson, you will focus on extreme natural events as a potential risk or hazard that makes our planet unsafe.

2

Part 1 (50 to 80 mins)

1. Introduce the three (3) different learning stations (Slide No. 4) to the students and assign small groups to go to specific stations, including the tasks required for each station.
2. Introduce the [Operation: Safe Planet \(Student Digital Notebook\)](#) and the different tasks.
3. Explain some basic controls on the IMVR experiences if students have not used the experiences before. You may select one or both IMVR apps in the station and allocate approximately 5 to 6 minutes per student to go on one experience. Please note that due to class sizes and schedules, IMVR experiences may need to be spread out across two or more lessons.
4. Ask the first group to go to the IMVR Station. Each station should have 2 students each, with one student using the headset and the other student as the collaborative partner.
5. Assign a second group on the HHVR Station and use provided links and QR Codes to access the experiences (Slides 7, 8, 9).
6. The remaining students may access their digital notebooks on their devices and respond to the suggested tasks.
7. Slowly get students to shift across the different Learning Stations as the first group completes the IMVR experience.
8. At the end of the lesson, ask students to give some feedback on their immersive learning experiences. What were their highlights? What were their challenges?

3

Part 2 (40 to 60 mins)

1. Get students to review their experiences from step 2.
2. Introduce the Design Thinking Framework (Slide No. 10) and explain that Part 1 enabled them to complete the Empathise, Define, and Ideate part of the process.
3. For this part, students will get the chance to work on Prototyping (Slide No. 11) and Testing/Reflecting (Slide No. 12). For Prototyping, students may choose between using Tinkercad for designing an invention or innovation OR using CoSpaces for creating a VR campaign that addresses their selected issue arising from an extreme natural event.

4. Students may be encouraged to share their creations with a peer for feedback and reflection.
5. Students are asked to record their creations in their digital notebooks.

4

Conclusion

Get students to share their creations in small groups or as a class. Note if student responses are based on a risk, hazard, or disaster.

Australian Curriculum	NSW Curriculum	VIC Curriculum
<p><u>Year 7:</u> Causes, impacts and responses to an atmospheric or hydrological hazard (ACHGK042)</p> <p><u>Year 8:</u> Causes, impacts and responses to a geomorphological hazard (ACHGK053)</p>	<p>Stage 4 - Geography</p> <p><u>Physical Geography</u> describes geographical processes and influences that form and transform places and environments GEE4-2</p> <p>investigate the processes involved in volcanic and earthquake activity, folding and faulting, for example:</p> <ul style="list-style-type: none"> location of major tectonic plates and their boundaries discussion of evidence of tectonic plate movement explanation of the relationships between plate boundaries and major physical features <p>investigate patterns and processes associated with weather and weather events, for example:</p> <ul style="list-style-type: none"> description of meteorological processes that produce different types of rainfall and extreme weather events: droughts, floods, storms 	<p>Levels 7 & 8 - Geography</p> <p>Causes of an atmospheric or hydrological hazard and its impacts on places, and human responses to it to minimise harmful effects on places in the future (VCGGK110)</p> <p>Causes of a geomorphological hazard and its impacts on places and human responses to it to minimise harmful effects on places in the future (VCGGK121)</p>

Assessment Guideline

Assessment

Using the digital notebook and/or student creations/presentations, check how students understand the impact and responses of an extreme natural event.

Modifications

Students are encouraged to use either written or video recordings of responses to tasks in the digital notebook.

Extension

Students may opt to use both Tinkercad and CoSpaces in creating solutions and sharing their understanding of the topic. Tinkercad creations may be imported in CoSpaces as part of their presentation. Students may also use Google Blocks on the IMVR to get a different experience of the creation experience on IMVR.