

# Lesson Plan

AR & VR LESSON PLAN

## Iceland Is Melting – Human Impact and Environmental Change

**Learning Area** Geography

**Kit**

VR/AR Education Kit

**Year Level** Year 10

**Duration**

1x 60 minute Lesson

### Introduction/Description

One of the many issues that we face when battling climate change, is the melting of the ice caps. This may seem like a problem that is quite removed from us in Australia, however, how does the melting of icecaps actually affect us and the world?

### Learning Intentions

Students will focus specifically on the melting of ice in Iceland as a result of climate change and the potential consequences this will have on the world.

### Task Summary

Students will form some hypotheses about the future impact melting ice-caps will have on the world after engaging with the virtual reality (VR) experience *Iceland is Melting*.

### Preparation

Students are expected to:.

- Have some background in viewing Youtube videos in VR on the HHVR headsets.
- Have been studying the concepts of how human activities have had an impact on environmental change.

Teachers should make sure that:

- Devices are charged.
- Students are able to access all listed websites
- Slide deck has been checked and the teacher has access
- A copy of the Student Digital Notebook has been distributed to students and they have downloaded/ made a copy for themselves.
- Students have been prepped with pre-required understanding to complete the learning of this lesson
- Students are divided into pairs or groups depending on how many devices are available. A suggested rotation cycle may be:

Group	Round 1	Round 2	Round 3
Group 1	HHVR	Research	Image Study
Group 2	Image Study	HHVR	Research
Group 3	Research	Image Study	HHVR

*This may differ based on student numbers and number of HHVR headsets/ devices.*

## Resources

- Websites
  - [Natural Vs Anthropogenic Climate Change](#)  
*A website by the University of Calgary explaining the difference between natural and anthropogenic climate change*
  - Images of change:  
*A website run by NASA that shows before and after images of the Earth*
    - [Arctic Sea Ice](#)  
*Older, thicker sea ice declines*
    - [Greenland Ice Melt](#)  
*Exceptionally early ice melt in Greenland*
    - [Early Sea Ice Breakup](#)  
*Early sea-ice breakup in Beaufort Sea, Arctic*
    - [Shrinking Glaciers Antarctica](#)  
*Shrinking glaciers along Western Antarctica*
    - [Shrinking Ice cap - Iceland](#)  
*Shrinking Mýrdalsjökull ice cap, Iceland*
- Hardware
  - Student laptops
  - Handheld Virtual Reality (HHVR) Headsets
  - Mobile Device
- Apps:
  - [Iceland's Glaciers](#) (4:05)  
*In the first of National Geographic's "Into Water" 360 series, travel by air, boat and jeep through the rugged Icelandic countryside with geographer and glaciologist Dr. M Jackson. She has spent the last decade documenting the incredible physical and cultural changes of the island nation as it experiences an unprecedented melting of its iconic ice.*
- Teaching Materials:
  - [Iceland is Melting: Student Digital Notebook](#)
  - [Iceland is Melting: Teaching Deck](#) (slide deck)

## Other Learning Areas

- English

# Learning Sequence

## 1

Introduction  
(10 mins)

- Begin by sharing with students the difference between a human-centred and an earth-centered worldview on Climate Change. Students record their thoughts in their [Student Digital Notebook](#) on;
  - What statements do you agree with and
  - Where do you feel you sit most?
- As a class, discuss the difference between natural and human induced climate change.  
Ask students to access the following website [Natural Vs Anthropogenic Climate Change](#) and ask them to complete a [4 C's thinking routine](#) on the text in their [Student Digital Notebook](#):
  - **Connections:** What connections do you draw between the text and your own life or your other learning?
  - **Challenge:** What ideas, positions, or assumptions do you want to challenge or argue with in the text?
  - **Concepts:** What key concepts or ideas do you think are important and worth holding on to from the text?
  - **Changes:** What changes in attitudes, thinking, or action are suggested by the text, either for you or others?

## 2

Development  
(30–35 mins)

### Station-based Experiences

- Divide students into 3 groups. Rotate groups through each station (10 mins each station). Students should record their thinking and interactions with each station in their [Student Digital Notebook](#).

#### **Station 1 - Research**

Students study the impacts and management of human induced climate change in Australia and at least one other country and compare.  
What other glaciers are being affected? - Alaska's Columbia Glacier & Mt. Ararat

#### **Station 2- Image study - Images of change**

Students study the following images, read the captions and complete a [Connect Extend Challenge](#) on each one:

- [Arctic Sea Ice](#)
- [Greenland Ice Melt](#)
- [Early Sea Ice Breakup](#)
- [Shrinking Glaciers Antarctica](#)
- [Shrinking Ice cap - Iceland](#)

**Connect, Extend, Challenge:** Consider what you have just read, seen, or heard, and then ask yourself:

- How are the ideas and information **connected** to what you already knew?
- What new ideas did you get that broadened your thinking or **extended** it in different directions?
- What **challenges** or puzzles emerge for you?

#### **Station 3 -HHVR**

Students to watch [Iceland's Glaciers](#) (4:05) on the YouTube app using the HHVR. Once they have finished watching, they can answer the following questions with their opinions in their [Student Digital Notebook](#) :

- What are the causes and consequences of change in environments and how can this change be managed?
- How are the changes in these arctic environments going to impact us here in Australia?

# 3

Conclusion  
(5–8 mins)

- Have students engage with a [+1 Routine](#) in their [Student Digital Notebook](#) to finish recapping and synthesizing new information from the lesson.

## Recall

In 2–3 minutes and working individually, each learner generates a list of key ideas that he or she recalls from the presentation that they feel is important to hang onto. Learners do this from memory rather than reviewing notes or material.

## Add (+) 1

Learners pass their papers to the right. Taking 1–2 minutes, each student reads through the list in front of him/her and adds one new thing to the list. The addition might be an elaboration (adding a detail), a new point (adding something that was missing), or a connection (adding a relationship between ideas). REPEAT this process at least two times.

## Review

Return the papers back to the original owner. Learners read through and review all the additions that have been made on their sheets. At the same time they may add any ideas they have picked up from reading other's sheets that they thought were worthwhile.

## Additional Teaching Notes

This lesson can be used at any point during a unit on sustainability and climate change.

# Modifications

## Adaptations

One or more of the learning stations may be abandoned if time/ resources permit.

Students may work in pairs in their research.

Image study may be done as a class – or give one image to each person/ pair to specifically comment upon.

## Extension Ideas

Students may write an essay based on their opinions around natural vs anthropogenic climate change.

Students may complete an in depth comparison between different glaciers and ice caps and the rate at which they are being affected by Climate Change.

# Curriculum Connections

Australian Curriculum	NSW Curriculum	VIC Curriculum
<p>Year 10 - Geography</p> <p>The human-induced changes that challenge the sustainability of places and environments</p> <p><u>(AC9HG10K01)</u></p> <p>Environmental worldviews of people and their implications for environmental management</p> <p><u>(AC9HG10K02)</u></p>	<p>Stage 5 - Geography</p> <p><b>Physical Geography</b> assesses the interactions and connections between people, places and environments that impact on sustainability <b>GEE5-4</b></p>	<p>Levels 9 &amp; 10 - Geography</p> <p>Identify, analyse and explain significant interconnections within places and between places over time and at different scales, and evaluate the resulting changes and further consequences <b>VCGGC129</b></p> <p>Environmental, economic and technological factors that influence environmental change and human responses to its management <b>VCGGK145</b></p>

<p>Year 10 - English (For extension essay activity)</p> <p>Plan, create, edit and publish written and multimodal texts, organising, expanding and developing ideas through experimenting with text structures, language features, literary devices and multimodal features for specific purposes and audiences in ways that may be imaginative, reflective, informative, persuasive, analytical and/or critical</p> <p><u>(AC9E10LY06)</u></p>	<p>Stage 5 - English (For extension essay activity)</p> <p><b>Outcome 2</b> effectively uses and critically assesses a wide range of processes, skills, strategies and knowledge for responding to and composing a wide range of texts in different media and technologies <b>EN5-2A</b></p>	<p>Level 10 - English</p> <p>Create literary texts with a sustained 'voice', selecting and adapting appropriate text structures, literary devices, language, auditory and visual structures and features for a specific purpose and intended audience <b>VCELT477</b></p>
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## Cross-Curriculum Priorities

- ☒ Aboriginal and Torres Strait Islander Histories and Cultures
- ☒ Asia and Australia's Engagement with Asia
- ☒ Sustainability

## Capabilities

- ☒ Literacy
- ☒ Numeracy
- ☒ ICT Capability
- ☒ Critical and Creative Thinking
- ☒ Personal & Social Capability
- ☒ Ethical Understanding
- ☒ Intercultural Understanding