File name: VR_1.2T_LP5_EarthScience_Science_11
Topic: The Atmosphere and weather
Keywords: Palau, corals, climate change, acidic waters
Suggested grade level: Grade 11
Estimated activity time: 15 min

Earth Science – Science 11

The Atmosphere and the weather it creates and climate change

VR 360^0 exploration: Ocean: A 360-degree tour of the mysterious, magical corals of Palau | The Economist
https://www.youtube.com/watch?v=jvtvFHPRcsY&t=92s

General Introduction:
Participating in a VR 360^0 exploration/expedition is like going on a vacation or trip. You have to plan your destinations, places to eat, relax, and where you would like to meet your friends and family. It means that you have to identify your objectives.

For teachers:
In this section, you will see a modified planning and preparation arranged into three steps. The steps are our suggestions. We hope they will help you maximize the learning opportunities a VR 360^0 exploration/expedition can potentially offer.

Three steps:

1) Pre-exploration: Preview the playlist exploration yourself. By doing this, you are identifying possible questions and activities that might enrich students' VR experience.

2) During exploration: Provide guide or key questions or ask the students to formulate new questions about the playlist and encourage students to refer to other resources (e.g., YouTube videos, articles, etc.) to connect and enrich the playlist.

3) Post-exploration: Follow-up on the new questions and wonders students have identified. These questions might lead to an interdisciplinary inquiry project, blog posts or short video clips to link with the original unit or chapter coverage.

Description:
In this 15-minute exploration activity, you'll see a 360^0 panorama of Ocean: A 360-degree tour of the mysterious, magical corals of Palau.

"Palau's vibrant corals are thriving, despite some of the warmest and most acidic waters in the world. In this virtual reality experience, Lukas Isall from the Palau International Research Centre explains how

unlocking the mystery of Palau's corals might help in the fight against climate change. The world's OCEANS cover 70% of our planet, are the frontline in the battle against climate change, and yet are relatively unknown. Dive down to their deepest depths to discover how scientists are using the latest technologies to uncover the vital mysteries that they have hidden." The Economist Published on Mar 8, 2017

Objective:
The core learning outcome of this playlist is to enrich students' understanding about climate change and spread public awareness on its effect to the environment.

However, unlike a regular 2D video, this VR provides a 360^0 panorama, which allows your students to focus on different points of interest that might vary from student to student. So, take time to explore the playlist using different angles and positions.

OCEANS S1 • E3
Ocean: A 360-degree tour of the mysterious, magical corals of Palau | The Economist

Suggested Guide:

1) **Pre-exploration:**
   Review what is climate change:
   https://www.nasa.gov/audience/forstudents/k-4/stories/nasa-knows/what-is-climate-change-k4.html

   https://www.bbc.com/news/science-environment-24021772

   https://davidsuzuki.org/what-you-can-do/what-is-climate-change/

2) **During exploration:**
What key questions could pique students' interest as they watch this playlist?
As well, ask them to think of interesting questions they want to answer as they watch the playlist. Let them discuss these questions and their possible answers.
They can do this by groups of two or three.

With limited number of Google cardboards, let students work in pairs. Let them take turn to watch the playlist and do a Q & A. For example, Student 1 will describe to student 2 what he/she is seeing right now. Student 2 will explain the playlist, to Student 1 and each student will take turns doing Q & A.

3) **Post-exploration:**
Give time for the pair/class to think about the questions and answers they have generated after watching the playlist.

Then invite them to read/watch the links below. With the playlist, let them express their understanding, reactions into any interdisciplinary inquiry projects, blog posts, short video clips, etc.

What is climate change?
https://www.bbc.com/news/science-environment-24021772

What is climate change?
https://davidsuzuki.org/what-you-can-do/what-is-climate-change/

References:

https://edu.google.com/products/vr-ar/expeditions/?modal_active=none

https://www.youtube.com/watch?v=jvtvFHPRcsY&t=92s

https://www.nasa.gov/audience/forstudents/k-4/stories/nasa-knows/what-is-climate-change-k4.html

https://www.bbc.com/news/science-environment-24021772

https://davidsuzuki.org/what-you-can-do/what-is-climate-change/

https://www.bbc.com/news/science-environment-24021772

https://davidsuzuki.org/what-you-can-do/what-is-climate-change/