

File name: VR_3T_LP4_EnvironmentalScience_Science_12

Topic: Environmental Science

Keywords: Marine life, acidification, marine reef

Suggested grade level: Grade 12

Estimated activity time: 15 min

Environmental Science – Science 12

Human activities and the global community

VR 360° exploration: The Crystal Reef: How Climate Change Affects the Oceans | 360 Video | Time For Kids

<https://www.youtube.com/watch?v=dsLZgaw2kws>

General Introduction:

Doing a VR 360° exploration/expedition is like going on a vacation or trip. You have to plan e.g. your destinations, places to eat, relax, and meet friends and family. It means identifying your objectives.

For teachers:

In this section, you will see a modified planning and preparation arranged into three (3) steps. As a teacher, these steps help you maximize the learning opportunities a VR 360° 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° panorama of Crystal Reef in Naples, Italy.

“In The Crystal Reef, viewers meet marine scientist Dr. Fio Micheli and see the effects of climate change. With Micheli, viewers explore a rocky reef off the coast of Italy to learn about ocean acidification and the toll that human-produced carbon dioxide is taking on the reef. Half of the world's coral reefs have died in the last 30 years. New research in the journal Nature shows that even if people succeed in protecting reefs from pollution and overfishing, global warming remains a deadly threat.”

<https://www.youtube.com/watch?v=dsLZgaw2kws>

Objective:

The core learning outcome of this playlist is to enrich students' understanding of climate change by looking at the impacts on marine life using virtual reality technology.

However, unlike a regular 2D video, this VR provides a 360° 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 Crystal Reef: How Climate Change Affects the Oceans | 360 Video | Time For Kids

the playlist using different angles and positions.

Suggested Guide:

1) Pre-exploration:

Climate change: http://wwf.panda.org/our_work/oceans/problems/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.

Let them recall experiences that might relate to the playlist e.g. early preparation and research before hiking on mountain ranges or active volcano or the hazards/effects of volcanic ash on aircraft.

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

Three Ways Climate Change is Harming Marine Species:

<https://blog.epa.gov/2016/08/04/three-ways-climate-change-is-harming-marine-species/>

References:

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

<https://www.youtube.com/watch?v=dsLZgaw2kws>

http://wwf.panda.org/our_work/oceans/problems/climate_change/

<https://blog.epa.gov/2016/08/04/three-ways-climate-change-is-harming-marine-species/>