

File name: VR_1.4T_LP1_EarthScience_Science_11

Topic: Earth science, Astronomy

Keywords: Solar eclipse, shadow, totality

Suggested grade level: Grade 11

Estimated activity time: 15 min

Earth Science – Science 11

Astronomy (theory and interactions of Earth and the solar system)

VR 360⁰ exploration: Total Solar Eclipse in Svalbard, 2015 (360 Panorama)

https://www.youtube.com/watch?v=sCL_bXF7k_Q&index=8&list=PLdif7_TsS-TTd7yRerCPDF3JhN0sGg5Y

General Introduction:

Doing a VR 360⁰ 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 360⁰ 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 a total solar eclipse.

“At 77° north, and with perfect clear skies, Amelnryggen in Svalbard was one of the most spectacular places in the world to see the total solar eclipse of 2015. Presented here in panoramic 360 degrees, you can see it all as the unusual light and shadow of the eclipse dances across the Arctic landscape.

Location: Amelnryggen N 77°57.051' E 016°48.386' Elevation: 778m” Stargate Media Published on Mar 21, 2015

Objective:

The core learning outcome of this playlist is to enrich students' understanding about solar eclipse and experiencing it in 360° view.

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 playlist using different angles and positions.



Total Solar Eclipse in Svalbard, 2015 (360 Panorama)

Suggested Guide:

1) Pre-exploration:

Review how solar eclipse takes place.

Solar eclipse 101: National Geographic: <https://www.youtube.com/watch?v=cxrLRbkOwKs>

Solar eclipses, explained:

<https://www.nationalgeographic.com/science/space/solar-system/solar-eclipse-article/>

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.

References:

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

https://www.youtube.com/watch?v=scL_bXF7k_Q&index=8&list=PLdif7_TsS-TTd7yRerCPDF3JhN0sGg5Y

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

<https://www.nationalgeographic.com/science/space/solar-system/solar-eclipse-article/>