OCEAN NETWORKS CANADA

Ocean Sense
Program

Lesson 1

Module:

Waves of Knowledge

Time:

60 minutes

Learning pillars:

- Indigenous knowledge

Grade & curriculum connection:

- **BC Science 8**
  "The theory of plate tectonics is the unifying theory that explains Earth's geological processes."

Created in partnership with:

Nuu-chah-nulth knowledge holders Darrell Ross Sr. (Tseshaht First Nation), Cliff Atleo Sr. (Ahousaht First Nation), and Tom Happynook Sr. (Huu-ay-aht First Nations)

A UNIVERSITY OF VICTORIA INITIATIVE

What Others Know

Listen to Nuu-chah-nulth knowledge holders share information about historic tectonic plate movement in Nuu-chah-nulth territory. Explore artwork from different cultures in order to examine how people observe and experience major geological events of local significance.

Knowledge of major geological events comes in many forms, including oral history and items of artistic expression such as paintings, carvings, and textiles. There are many ways of sharing, experiencing, and understanding **earthquakes** and **tsunamis**.

Learning objectives

- Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information.
- Express and reflect on a variety of experiences and perspectives of place.

Materials

- Computer with internet connection
- Projector, screen, and speakers
- Slide deck: **Waves of Knowledge (bit.ly/SlidesWOK)**
- Video: **Waves of Knowledge (bit.ly/VidWOK)**
- Activity 1: *Gallery Walk* and all materials listed therein

Teacher preparation

- Preload the slide deck: **Waves of Knowledge (bit.ly/SlidesWOK)**
- Prepare materials from the activity *Gallery Walk*

Classroom instructions

Hook

1. Discuss and define a major geological event.
2. Share slide 4 to introduce the topic of experiencing major geological events.

Step-by-step process

3. Share the video clip from Waves of Knowledge on slide 5 featuring Darrell Ross Sr. (Tseshaht First Nation) and Tom Happynook Sr. (Huu-ay-aht First Nations).
    a. Clip runs from 2:16min–4:12min in the section *Historical tsunamis through time*.
4. In a manner that works best for students, discuss the questions on slide 6 that relate to sharing information about historic major geological events.
5. Complete the activity Gallery Walk.
6. Share slide 15 to revisit how people observe, experience, and share information about major geological events of local significance.

Modifications and adaptations

- Complete the activity *Gallery Walk* as a whole class-guided discussion using the images on slides 8-14 in the slide deck *Waves of Knowledge*.
- Watch the entire video, *Waves of Knowledge*.

Final remarks to the educator

There are many ways of sharing, experiencing, and understanding significant geological events, and together, they all contribute to how we share and grow our collective understanding of natural events. Different groups have valued different information sources throughout history.

Three Nuu-chah-nulth knowledge holders are featured in the video, Waves of Knowledge. Darrell Ross Sr. is a Tseshaht knowledge holder and Manager of Natural Resources for Tseshaht First Nation. Cliff Atleo Sr., or as the Nuu-chah-nulth know him, Wickaninnish, is an Ahousaht citizen and a well-known Nuu-chah-nulth knowledge keeper. He is a senior negotiator and spokesperson for the Ahousaht and other Nuu-chah-nulth tribes, as well the former President of the Nuu-chah-nulth Tribal Council. Tom Happynook Sr. is the head Hereditary Whaling Chief of the Huu-ay-aht First Nations. Tom has been deeply involved in all aspects of Nuu-chah-nulth governance from the hereditary system to the elected. He continues to represent his people, bringing Huu-ay-aht and Nuu-chah-nulth culture to audiences around the world with emphasis on traditional ecological knowledge that has been passed down through his family.

Assessment

- Using artefacts shared in the lesson, how do people observe, experience, and share information about major geological events of local significance?
- How can different types of artefacts such as data, art, and oral history come together to help create a more complete understanding of a geological event?
- Why is it important to bring in multiple perspectives when trying to understand events outside one or more lifetimes?
- Why do you think people from cultures all over the world create artefacts about disasters such as earthquakes and tsunamis?

Extensions

- Invite the students to find additional artefacts that could be added to this exploration of major geological events.
- Listen to **The Great Quake and the Great Drowning** on the Hakai Magazine website which shares some of the Indigenous oral histories depicted by the artwork in the activity *Gallery Walk.*

Glossary

Earthquake: A sudden shaking of the ground, caused by tectonic plate movement.

Major geological events: Any naturally occurring geological event (such as an earthquake, tsunami, volcanic eruption, or landslide) that causes impact to human life/settlement or infrastructure; generally, an event of significant size that impacts multiple groups or persons at once.

Glossary continued

Nuu-chah-nulth: Nuu-chah-nulth territory extends 300km along the west coast of Vancouver Island and includes inland regions as well. There are 15 Nations that share language, traditions, and aspects of culture. Each Nuu-chah-nulth First Nation remains an independent governing entity. Meaning "all along the mountains and sea", Nuu-chah-nulth can also be spelled nuučaaʔuł.

Tectonic plates: Pieces of the Earth's outer layer (lithosphere) that are the basis of tectonic plate theory.

Tsunami: A displacement movement of the entire water column, usually resulting in a gigantic wave; usually caused by an earthquake or landslide.

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Activity 1

Gallery Walk

Explore artwork from different cultures in order to examine how people observe and experience major geological events of local significance.

Module:
Waves of Knowledge

Lesson:
What Others Know

Learning pillars:
- Indigenous knowledge
- Data exploration

Grade & curriculum connection:
- **BC Science 8**
  "The theory of plate tectonics is the unifying theory that explains Earth's geological processes."

Materials
- Computer with internet connection
- Printer (colour or black + white)
- Attached Gallery Walk images and questions

Teacher preparation
- Print one copy of the Gallery Walk artefacts and questions.
- Display the artefacts paired with the appropriate guiding questions around the classroom.

Procedure
1. Group the students into seven groups.
2. Have the groups walk around and discuss the artefacts, using the corresponding guiding questions to structure their discussion.
3. Rotate the groups until each group has seen all 7 artefacts.
4. Discuss:
    a. How are artwork and oral histories effective ways to share information about major geological events?
    a. How can artwork inform future decision making about major geological events?
    a. What information about major geological events would you want to share from one generation to another?
    a. What can you do to ensure information about past major geological events is shared in your community?

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Conclusion

People share information about past major geological events through many different types of artistic expression including oral history, dance, song, and art. It is important to remember that these expressions are valid sources of information and often culturally significant records.

Ḳitsaḳsuu-ilthim House Screen, 1892

Ḳitsaḳsuu-ilthim House Screen, 1892

These are interior ceremonial screens from Port Alberni, BC. The screens depict the thunderbird, accompanied by the lighting serpent and wolf, carrying the whale in its talons. Oral histories of thunderbird and whale tell of shaking and flooding.

Question

1. What is the artist trying to communicate to viewers?

Thunderbird and Whale had a terrible fight - By Jeffrey Veregge, 2015

Thunderbird and Whale had a terrible fight - By Jeffrey Veregge, 2015

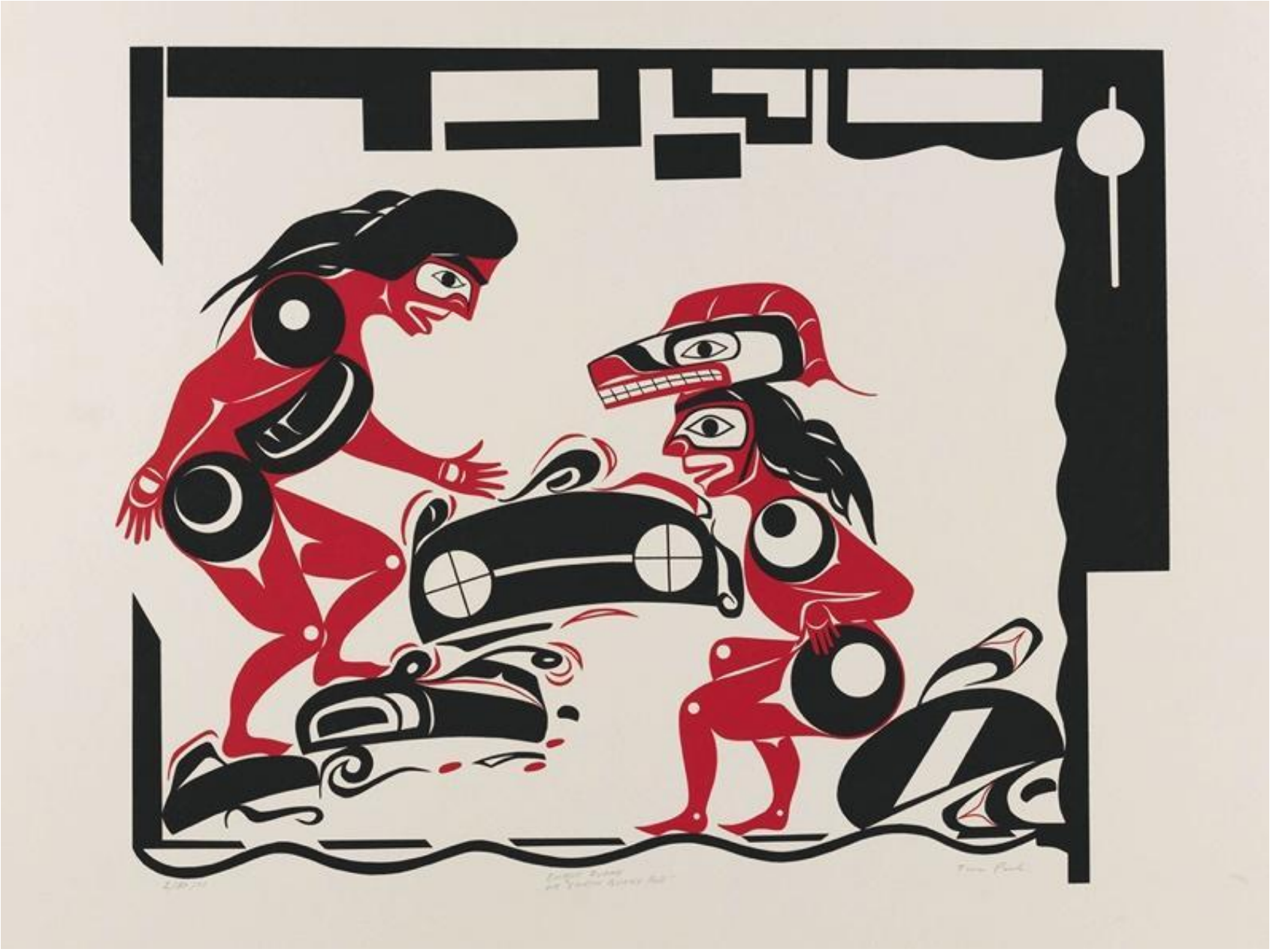
This illustration depicts the oral history from the Quileute and the Hoh people in what is now Washington, USA.

“Thunderbird and Whale had a terrible fight, making the mountains shake and uprooting the trees; they said the ocean rose up and covered the whole land.” (Finkbeiner, 2015)

Question

1. What is the artist trying to communicate to viewers?
2. What is meant by "the ocean rose up"?
3. Why is this oral history important for community resilience?

Earthquake Foot - By A-nii-sa-put (Tim Paul), 1977



Earthquake Foot - By A-nii-sa-put (Tim Paul), 1977

This is a vectorized image of a silkscreen print. Tim Paul grew up in Ehattesaht on the west coast of Vancouver Island. The print depicts a Nuu-chah-nulth oral history, summarized below.

"...on Vancouver Island, dwarfs who lived in a mountain invited a person to dance around their drum; the person accidentally kicked the drum and got earthquake-foot, said the Nuu-chah-nulth people, and after that every step he took caused an earthquake. The land shook and the ocean flooded in, said the Huu-ay-aht people who are part of the Nuu-chah-nulth, and people didn't even have time to wake up and get into their canoes, and "everything then drifted away, everything was lost and gone." (Finkbeiner, 2015)

Question

1. What is the artist trying to communicate to viewers?
2. What could it mean that every step caused an earthquake?

Chaos During an Earthquake - By José Guadalupe Posada, 1894

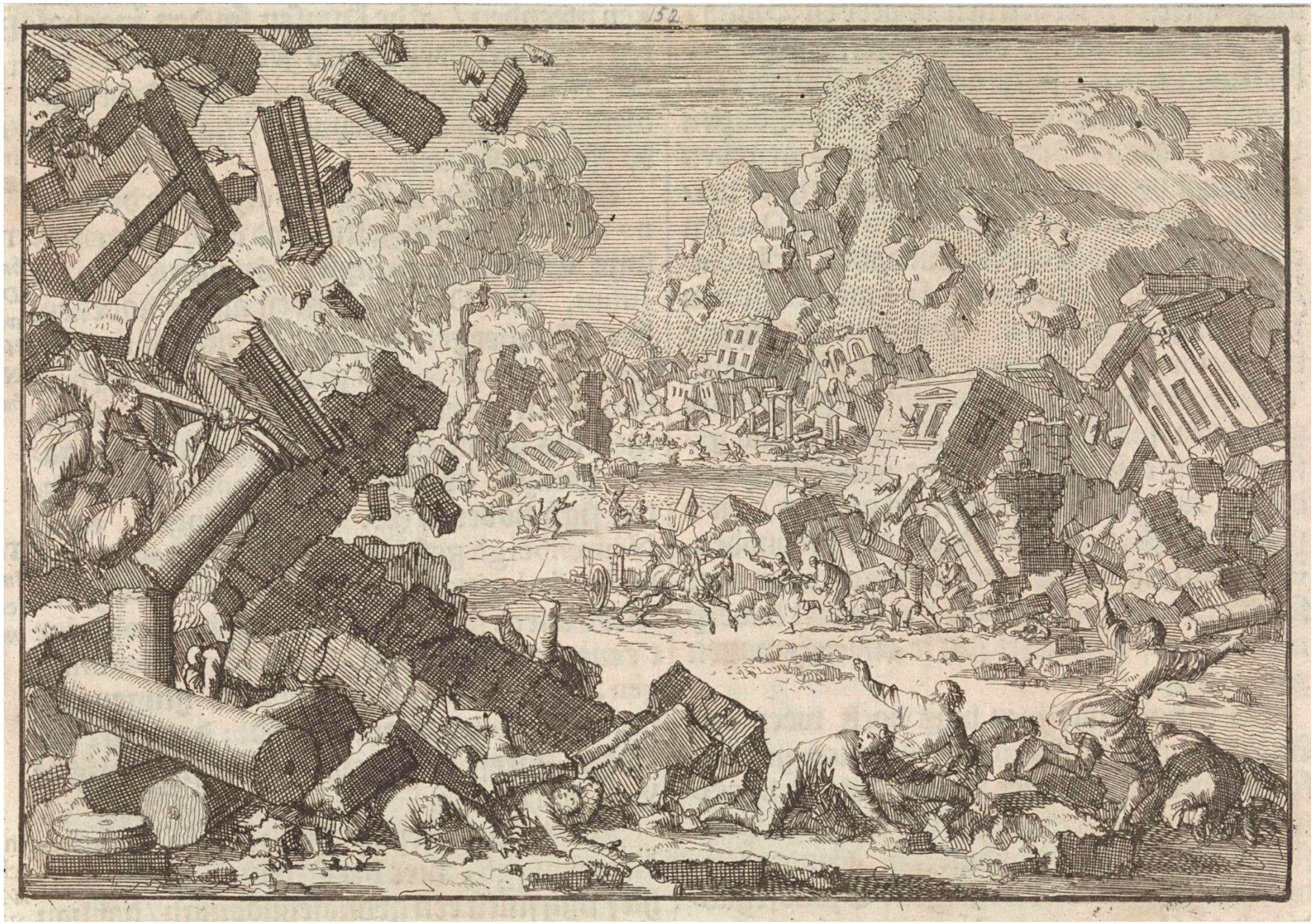
Chaos During an Earthquake - By José Guadalupe Posada, 1894

This is a metal engraving from the Mexican political printmaker, José Guadalupe Posada.

Questions

1. What is the artist trying to communicate to viewers?
2. Why do you think the artist depicted people with their hands in the air?

Earthquake in Ragusa, 1667 - By Jan Luyken and Pieter van der Aa (I), 1698



Earthquake in Ragusa, 1667 - By Jan Luyken and Pieter van der Aa (I), 1698

Jan Luyken, the print maker, lived in northern Netherlands from 1649–1712. The earthquake depicted occurred in Ragusa, Italy.

Questions

1. What is the artist trying to communicate to viewers?
2. Why do you think the artist focused on buildings and land in this image?
3. Why do you think the artist included elements of motion in this image?

Earthquake on Ambon, Indonesia, 1674 - By Jan Luyken and Pieter van der Aa (I), 1698

Earthquake on Ambon, Indonesia, 1674 - By Jan Luyken and Pieter van der Aa (I), 1698

Jan Luyken, the print maker, lived in northern Netherlands from 1649–1712. The earthquake depicted occurred in Ambon, Indonesia.

Questions

1. What is the artist trying to communicate to viewers?
2. Why do you think the artist focused on and land in this image?
3. Why do you think the artist included elements of dust and clouds?

The Earthquake Scare in Piccadilly - By Louis Philippe Boitard, 1750

The Earthquake Scare in Piccadilly - By Louis Philippe Boitard, 1750

The artist, Louis Philippe Boitard, was a French engraver living in 1734–1760.

Questions

1. What is the artist trying to communicate to viewers?
2. What does this tell us about the time period?
3. Why aren't buildings shown?