



Grade Level: 8
Subject: Math

Plankhouse Construction

ESSENTIAL UNDERSTANDINGS

- Since Time Immemorial
- History
- Language
- Lifeways
- Tribal Government
- Sovereignty

LEARNING OUTCOMES

- Students will be able to construct a reflection and translation of a plankhouse
- Students will be able to recognize the movements of the people throughout the seasons
- Students will be able to identify what type of mathematical movements are used in a transition time for Native Americans

CULTURALLY RESPONSIVE PRACTICES

- Connecting to students' personal families and family members
- Preserving and honoring cultural history
- Music

ASSESSMENT

Students will be assessed on their proficient completion of the Plankhouse Construction Worksheet and Graph.

Overview

This lesson will introduce students to the traditional homes of the Grand Ronde Community, the plankhouse, and allow the students to learn about the design of the plankhouse through construction of a plankhouse on a coordinate plane. The plankhouse often served as a permanent home for the Native Peoples of the Confederated Tribes of Grand Ronde and often housed many families - in the same way a classroom does.

MATERIALS

- [Plankhouse Read Aloud](#)
- [Plankhouse Construction Worksheet](#)
- [Plankhouse Construction Graph](#)
- [Vocabulary](#)
- [Plankhouse Crossword](#) (optional)

LOGISTICS

- Where does this activity take place?
Classroom
- How are the students organized?

Whole Class Teams: 3-5

Pairs Individually

TIME REQUIRED

50 minutes

STANDARDS

Oregon Common Core State Standards: Math

8.G.A.1 Verify experimentally the properties of rotations, reflections, and translations.

8.G.A.2 Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.

8.G.A.3 Describe the effects of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.

Oregon Social Sciences Academic Content Standards

Historical Knowledge 8.25 Evaluate the impact of the intersectionality of what constitutes identity including, including but not limited to, gender, age, race, ethnicity, religion, physical and mental disability, and class on the living histories and experiences of peoples, groups, and events.

English Language Proficiency Standards

6-8.4 An ELL can construct grade appropriate oral and written claims and support them with reasoning and evidence.

Background for Teachers

Teachers should review Plankhouse Read Aloud prior to teaching the lesson

“The immense communal houses of the Northwest Coast kept the damp chill of a temperate rainforest at bay, but also provided ample space for dramatic & religious performance, work, storage, and hosting huge potlatches and feasts. Large villages might contain 80 houses, each holding as many as 100 residents. The indigenous people of the Pacific Northwest constructed their plank homes from red cedar trees (*Thuja plicata*), with rare use of yellow cedar, spruce or hemlock up North. Houses were often 40-60 feet square. The primary frame of plank houses consisted of cedar logs: usually 8 posts peg-joined to 4-6 roof beams. A lighter framework of poles (approx. 3 inches in diameter) was tied with cedar-bark to the wall posts & rafter beams. The house was then covered in 4 in thick planks of cedar that could be harvested from live trees via wedging. While wall planks were tied, or slotted between poles, roof shingle planks were often simply weighed down with logs & rocks, facilitating removal and reuse in summer clan harvesting camp locations. The house frames were left intact until the next season when the people returned and reattached their traveling planks and reconstructed their home. Wall planks could be aligned vertically (Kwakwaka'wakw/ Nuxalk/ Tlingit/ Haida / Tsimshian) or horizontally (Nuu-Chah-Nulth).”

-<https://naxnox.weebly.com/plank-houses.html>

Websites:

[Grand Ronde celebrates achaf-hammi's 10th birthday -- Smoke Signals: https://youtu.be/gsb2gowzpkm](https://www.youtube.com/watch?v=gsB2GOWZpKM)

<https://www.opb.org/news/article/wellness-warrior-camp-grand-ronde-oregon/#:~:text=The%20four%2Dday%20gathering%20in,healing%20the%20pain%20they%20carry.>

Books:

Willamette Valley Voices, First Volume available at the Willamette Heritage Center Museum Store

VOCABULARY

- **Rotation** - a transformation in which a figure turns around a central point (the center of rotation)
- **Reflection** - a transformation in which a figure is reflected over a line (the axis of reflection)
- **Translation** - a transformation in which a figure is moved a certain distance. It is “slid” across the plane. Every point and every line of the shape must be moved the same distance.
- **Generation** - a population (in this unit: Native Americans) that experience the same significant events within a given period of time, usually about 20 years
- **Dwelling** - home or residence (plankhouse, brush house, mat house, or longhouse)
- **Ranking** - a position of achievement, age, or status - sometimes related to a particular family who holds political power
- **Plankhouse** - a house made of cedar planks (in Oregon a red cedar tree, in Northern California a Redwood tree)

Opening

Begin by reviewing vocabulary words with students. Ask them if they have ever heard these terms before and where.

Show students video: <https://youtu.be/gSB2GOWZpKM>

Activity

1. Read the Plankhouse Read Aloud. This can be done as a whole group, in small groups, partners, or individually.
2. Once the read aloud is finished, have students compare the homes they live in to the plankhouse. Ask about similarities and differences between the two.
3. Pass out the worksheet and graph to each student.
4. Read the “Directions” portion of the worksheet aloud to the class.
5. Allow students to work on their construction of a plankhouse.

Closure

Once students are finished, have them compare their graphs with a partner’s. Students may also choose to decorate their plankhouse.

Differentiation

- Students may work together in groups on the graphing worksheet so they can discuss questions and compare coordinate planes
- Students may use assistance from an online graphing tool such as www.desmos.com

Extension

- Students can work on the Plankhouse crossword after completing their graph

Notes/Other

Jan Michael Looking Wolf's or Grand Ronde Canoe Family audio tracks can be played as background music while students are working. These audio tracks can be found on Spotify or Apple Music.

Jan Michael Looking Wolf: [Spotify](#) and [Apple Music](#)

Grand Ronde Canoe Family: [Spotify](#) and [Apple Music](#)

Appendix

Plankhouse Read Aloud:

https://drive.google.com/file/d/1LkU9WlyCptY9kUI-Ox5ORJb_BW31Vvm6/view?usp=sharing

Plankhouse Construction Worksheet:

<https://drive.google.com/file/d/1FjocggYXkmRKzez5zzNMuMK2ITlk49Ok/view?usp=sharing>

Plankhouse Construction Worksheet Answer Key:

<https://drive.google.com/file/d/1yltvwkJ8U1JXE8ndcyapwSMu1P8m9tsW/view?usp=sharing>

Plankhouse Construction Graph:

https://drive.google.com/file/d/15l6eRGDvnXuJuz_LuPGTz_ZSsR8jX_qZ/view?usp=sharing

Plankhouse Crossword:

<https://drive.google.com/file/d/1312-zWuVf037WLPiFAe6kQJOnJcl4HWD/view?usp=sharing>