Plankhouse Building Capacity

ESSENTIAL UNDERSTANDINGS

- Since Time Immemorial
- History
- Language
- Lifeways

LEARNING OUTCOMES

- Student will be able to apply mathematical formulas to solve for volume, area and surface area.
- Students will be able to apply mathematical equations to solve a real-world problem.
- Students will be able to define the type of dwellings the people of the Confederated Tribes of Grand Ronde lived in pre contact to settlers arrival.

CULTURALLY RESPONSIVE PRACTICES

- Higher level thinking: creating, analyzing, applying
- Student talk, working together and individually
- Connecting to community icons
- Connecting to the lives of the students

ASSESSMENT

Students will be assessed on their proficient completion of their Plankhouse Activity Sheet.

Overview

In this lesson, students will apply the formulas for area, volume and surface area to a construction project. This lesson combines traditional mathematical concepts with a cultural infusion. Students will be constructing and solving mathematical problems using the Grand Ronde plankhouse.

MATERIALS

- Plankhouse Activity Sheet
- Plankhouse News Article
- Calculator
- achaf-hammi's 10th birthday video
- You Belong To The Plankhouse, The Plankhouse Belongs To You
- Exit Ticket

LOGISTICS

- Where does this activity take place? **Classroom**

- How are the students organized?

  Whole Class   Teams: 3-5

  Pairs   **Individually**

TIME REQUIRED

45-60 minutes

STANDARDS

Oregon Common Core State Standards: Math
6.G.A.1 Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = l\,w\,h$ and $V = b\,h$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.
6.G.A.4 Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.

Oregon Social Science Academic Standards
Historical Knowledge 6.17 Identify and examine the roles and impact of diverse groups of people (social roles, political and economic structures, and family and community systems) across indigenous civilizations.
Historical Knowledge 6.19 Examine the historic and current contributions and relevance of indigenous cultures.

Background for Teachers

In order for students to be able to do this lesson they will need prior information on how to calculate area, volume and surface area.

Teachers should review the [Plankhouse Read Aloud](#) to prepare for the lesson. They may also choose to share this with students to provide them with a greater understanding of the context they are working within.

Read Aloud Link:
https://drive.google.com/file/d/1uwKpc-rXlGoG6 3A8gH4WkyPAgn-Ngk_V/view?usp=sharing

VOCABULARY

- **Plankhouse-** A traditional house made of cedar planks, usually from a western red cedar tree.

- **Surface area-** the total area of a surface of a three dimensional object.

- **Volume-** the amount of space occupied by a three dimensional object.

- **Area-** the amount of space inside boundary lines of a two dimensional shape.

Opening

To begin the lesson use the video links in this lesson plan. These videos will talk about achaf-hammi, the Grand Ronde plankhouse.

- Grand Ronde celebrates achaf-hammi's 10th birthday -- Smoke Signals:
  https://youtu.be/gsB2GOWZpKM

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

The activity sheet will give more information on how the plankhouse was built and its significance to the Grand Ronde tribe.

Activity

1. After the videos are complete, distribute the Plankhouse News Article to the students. The teacher can call on students to have them read aloud or the students can read individually.
2. Allow time for discussion:
   a. What is a plankhouse?
   b. How is it similar/different than the homes we live in today?
   c. Why would a plankhouse be significant to a Tribe?
3. Once the Grand Ronde plankhouse has been discussed, allow time for the students to complete the Plankhouse Activity Sheet. This can be completed individually, in pairs, or in small groups.

Closure

Have students complete the exit ticket to close the lesson.

Differentiation

- When needed, students can be organized to work individually, in small groups, in partners, or in whole group settings.
- Teachers can elect to only show one video instead of both.
- Teachers to choose to present the Plankhouse Read Aloud document to students in addition to, or instead of, the Plankhouse News Article.

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 Activity Sheet:
  https://drive.google.com/file/d/1WEWoLMFKtxdIJgquXaAbrkSxeu3BECvy/view?usp=share_link

- Plankhouse News Article:
  https://drive.google.com/file/d/1RS03MpXndPgONQUzrMRWLl6L6R8jVIYu/view?usp=sharing

- Video Links:
  - Grand Ronde celebrates achaf-hammi's 10th birthday -- Smoke Signals:
    https://youtu.be/gsB2GOWZpKM
  - You Belong To The Plankhouse, The Plankhouse Belongs To You - OPB.:
    https://www.opb.org/news/article/wellness-warrior-camp-grand-ronde-oregon/#:~:text=The%20four%2Dday%20gathering%20in,healing%20the%20pain%20they%20carry

- Exit Ticket:
  https://drive.google.com/file/d/1BIvwv125n1lVXOKsIx-ij2TvtdCFIndI/view?usp=share_link