# L'EIWÚ KA HÉEN

# Wood & Waterways: A Look at Tlingit Canoes



## A JUNEAU-DOUGLAS CITY MUSEUM PLACE-BASED HISTORY KIT GRADE 3-5



DEVELOPMENT OF THIS EDUCATION KIT FOR THE JUNEAU-DOUGLAS CITY MUSEUM WAS MADE POSSIBLE BY THE ALASKA STATE MUSEUM GRANT-IN-AID PROGRAM



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# Wood & Waterways: A Look at Tlingit Canoes



Grades: 3<sup>rd</sup>-5<sup>th</sup>

### Time: 1.5 - 2 hours

KIT INCLUDES:		MATERIALS NEEDED:		KIT DESCRIPTION:
<ul> <li>Lesson guide</li> </ul>		•	STEM boat design	Students design a boat
Tupperware a	and foil sheets	materials (class set: can include		using everyday materials and present their findings. Students describe what a boat is (specifically a canoe), what its purpose is, and what makes it effective. Students observe a model Tlingit canoe, learn about Tlingit navigation of waterways and use of local materials, Tlingit paddling
Student shee	• Student sheets (boat design		<ul> <li>modeling clay, foil, wax paper, tape, scissors, straws, coffee filters)</li> <li>Container to test student boats (individual storage bins or class kiddie pool works well)</li> <li>Pennies or</li> </ul>	
challenge)				
Wood & Wat	Wood & Waterways PPT			
Model canoe		• C s ( s c v v		
Tlingit Aaní Map				
• Links to "Coming Ashore"				
and "The Local: Master				
Carver" videos				
Canoe Building Puzzle Sets			paperclips to test	phrases, and the steps of
		boat capacity	Juneau City museum.	
VOCABULARY:		STAN	DARDS:	CONTENT CONNECTIONS:
ENGLISH:	Dicplacement	Design	3-5 EIS1 Engineering	Math
Navigation	Symmetrical	Define	a simple design	Social Studios
Adzo	Density	probler	n reflecting a need or a	Tlingit Culture
Waterways	Felling	want th	hat includes specified	Science
Canacity	rening	constra	ints on materials.	Science
Capacity		time, o	r cost.	
TLINGIT:		Alaska Content Standards:		
Aak'w Kwáan	T'aaku	Geogra	pny – D: A student	
Aaní	<u>K</u> wáan Aaní	able to	interpret spatial	
Yaakw	Loon	(geogra	phic) characteristics of	
Tsaa Eixi	Tá <u>k</u> l	human migrati	systems, including on, movement,	

Dáa <u>x</u> <u>G</u> ayéis' S'oow <u>X</u> út'aa X'éex'w <u>X</u> 'aan Héen	L'eiwu A Xées'i A K'óol' Té X'áakw X'átgu	interactions of cultures, economic activities, settlement patterns, and political units in the state, nation, and world. Alaska Cultural Standards for Students: – D Culturally- knowledgeable students are able to engage effectively in learning activities that are based on traditional ways of knowing and learning.	
<b>OBJECTIVES:</b> Students will		ASSESSMENT CRITERIA: Students will be at	ole to
• Explain the significance of		answer	
wood and waterways to the		• Did you learn something new? Wha	t?
Tlingit people		<ul> <li>Did this experience change how you</li> </ul>	u think about
Demonstrate the steps of		the topic?	
building a Tlingit canoe		• Is this something you can use in the	future?
<ul> <li>Describe what makes the</li> </ul>			
Tlingit canoe efficient			
PREPARATION:	Prepare and	test foil demo with kit materials	
	Tupperware dimensions	e full of water, foil cut into 2 flat squares of equal	
	Make copies	s of the student sheet	
	Preview Woo	od & Waterways PPT provided on thumb driv	e, ensure
	video links w	vork.	
Look up and p		preview "Coming Ashore" and "The Local: M	aster
	Carver" video	OS	
	Schedule a tr	rip to the Juneau-Douglas City Museum	

#### ENCOUNTER

#### Part One: Concept of a "boat" class discussion questions (15 minutes)

- What is a boat?
- What is its purpose? (To transport goods, connect people, fishing, hunting, ceremonies, trade, and war)
- What makes a boat effective? (ability to float, ability to hold people and goods, ability to turn, ability to go straight, and seaworthiness)

**What Floats? Demonstration:** Show the Tupperware full of water and 2 pieces of foil cut into equally shaped squares. Ask a student to get one piece of the foil to float on the water.

- Can they do it?
- Can another student make it sink? (crumpling the second piece will cause it to sink)
- What made one piece float and one piece sink?
- How does this relate to our everyday lives in Southeast Alaska? (boats utilize this concept)

This phenomenon is called **water displacement**, the ability of any object placed in a fluid to cause the fluid to no longer occupy that space. If the object's density is greater than water, it sinks.

Making an object to float on water needs to do several things – it should float by itself, with additional objects or people in it, be able to go straight (occasionally backwards), be able to turn, and be able to withstand variable water and weather conditions.

**Optional Extension Activity:** Look up "SciShow Why Do Ships Float" on YouTube to share video of cruise ship water displacement. Be sure to preview the video before sharing with your class.

#### Part Two: "Artful Teaching" See, Think, Wonder (10 minutes)

Show the "See, Think, Wonder" (first 7 slides of PowerPoint).

• What do you see?

Ask students to share what they see. One way to help focus only on what they see is to ask them to be able to point at the photo while they share.

- What do you **think** about the things you see?
  - Now students have an opportunity to share their connections to prior knowledge and to make interpretations.
- What do you wonder about?

Students will think about questions they have about the images.

After looking through the images the first time, take another quick look at slides 2-6 again to see if students notice a common occurrence or them within the images.

#### ENGAGE

#### The Challenge: Hands-On Learning Activity (45 minutes)

Hand out the **student challenge sheet** and review with the class before they are released to begin the challenge.

*Optional Math Extension Activity:* In addition to the challenge of building a boat that can carry weight (such as paper clips or pennies), students can see if they can design the most cost-effective boat. **Additional materials needed:** Class set of - popsicle sticks, toothpicks, glue separated into small amounts in condiment saucers, playdough separated in small balls, and a cost chart. **Note:** Conclusion to the activity could include inviting in a Master Tlingit carver to discuss tree selection processes and the role of wood and waterways in trade.

#### Example Cost Chart:

Laax_Red Cedar (popsicle sticks):	\$50 each
Shéiyi Sitka Spruce (toothpicks):	\$25 per 10 toothpicks
Tsaa ei <u>x</u> í Seal Oil for waterproofing (glue):	\$15 per saucer
X'átgu ei <u>x</u> í Dogfish Oil for waterproofing (playdoh):	\$10 per ball

#### REFLECT

#### Student Presentations: (30 minutes)

Students present their boat designs to the class explaining the characteristics of the boats they chose to make (size, shape, boat capacity, costs, any artwork incorporated, and inspiration for design) and the materials used. They will also describe the process they went through, did it work on the first try, if not, what modifications were made, were they able to get it to work at all? If no, why do they think their boat was not successful.

After experiencing designing a boat, describe what things the Tlingit and Haida people considered when designing a canoe?

#### Tlingit Canoe Model: (10 minutes)

Present the kit's canoe model to the class.

• What similarities and differences in design do you notice between your team boat and the canoe?

#### Puzzle: (30 minutes)

Refer to the Wood & Waterways PowerPoint (slides 8-12) to review the importance of canoes as the cornerstone of Tlingit culture. On slide 13, students can arrange puzzle pieces into the 12 steps of Tlingit canoe making. Students can compare their order with the remainder of the PowerPoint (slides 14-25). The correct order follows the PPT steps and additional prints can be made via the thumb drive teacher file.

#### ASSESSMENT

- Use "Self-Evaluation Checklist" on the "Wood & Waterways Student Sheet"
- The puzzle pieces can be used as an informal pre- and post- assessment if visiting the museum exhibit

#### **EXTENSIONS**

- Invite a Tlingit elder, knowledge bearer, or master carver to the class to discuss the significance of the tree selection process, the difference between Red Cedar and Sitka Spruce, and the role of canoes in Tlingit culture.
- Visit the Juneau-Douglas City Museum to see the L'eiwú Ka Héen exhibit in person
- Students can gift the knowledge of canoe making to someone new (family or friend) by sharing the steps of the process through song, artwork, a recipe book, or product of their choice.

#### **ADDITIONAL RESOURCES**

#### LINKS:

Juneau-Douglas City Museum

https://beta.juneau.org/library/museum

Elaine Abraham's Keynote Speech on "Aas Kwaani – The Tree People"

https://www.youtube.com/watch?v=jgfH77HvaHQ (min 12 :25 through 55:55)

Artful Teaching Routine

http://www.artfulteaching.org/uploads/6/9/4/1/69414177/at\_see\_think\_wonder.pdf

#### **WOOD & WATERWAYS STUDENT SHEET**

Name of Team Members:

Date:

#### Instructions Design a boat

• Using the materials, design a boat that can carry the most weight.

*The Problem:* Fishermen need to deliver 100 pounds of gáax'w (*herring eggs – represented by pennies or paperclips*) harvested at Indian Point (near the ferry terminal) and want to paddle to Haines. Since the route is 40 miles by water, it is important for the fishermen and gáax'w to stay safe and not tip over.

*The Challenge:* You have been asked to design a model of a boat to transport the fishermen and gáax'w from Juneau to Haines.

The Materials: You must construct your model boat using the materials provided.

#### Things to consider

- What boat design might work best for this challenge?
- How heavy are your materials?
- How will the extra weight of the gáax'w affect your boat?

#### Make a plan

- Brainstorm some ideas with your team.
- Decide on some materials to try and list them.
- Make a sketch of your idea **before** you begin to build.

#### When you are finished you will:

- Present your boat design to the class:
  - Explain the characteristics of the boat you choose to build. Explain the materials you used to design the boat. Demonstrate whether or not the boat worked.
  - Describe the process you went through,
    - Did it work on the first try?
    - If not, what modifications were made?
    - Were you able to get it to work at all?
    - If not, why do you think the boat was not successful?
- After experiencing making a boat, describe what things the Tlingit and Haida peoples considered when designing a boat.

Self-Evaluation Checklist

YES	NO			
		Our team brainstormed ideas together and all voices were		
		heard.		
		We created a sketch and included a materials list.		
		We tried our boat and made modification if needed.		
		We thoughtfully discussed what the designers of Tlingit canoes		
		must have considered when designing canoes.		
		We spoke loudly and clearly when presenting our boats.		
		We listened carefully and respectfully to other teams'		
		presentations.		