

Bentwood Box Unit Plan

Grade level: Secondary (Grades 9-10)

Project Timeline: 8-15 Hours

This unit plan is an example of what can be done to work Indigenous content and ways of learning, knowing, and being into the technology education shop/classroom. The goal is to not only create a project of importance to Indigenous peoples but to also put focus on the projects cultural and historical importance at a local level. Further, the unit is designed to explore the different types of bentwood box design and why they may be chosen over other box styles or build methods.

Some of the information may not be accurate outside of the local context for which this unit plan was created. It is important that educators connect with their local Indigenous communities or Indigenous education departments to ensure that their information and approach is accurate and that they are not overstepping any boundaries in the information they are sharing. The inclusion of Elders and Knowledge Keepers within the unit is also highly recommended to ensure authenticity and create connections between students and the visiting entity, opening an opportunity for cross-generational learning.

Project Delivery Strategy:

It is suggested that this project be approached using two methods of delivery. The first method requires access to computers with design and word processing capabilities to allow for students to perform research and work through the design process. The second method requires a more traditional woodworking space where much of the hands-on work can take place. Teachers can take whatever approach they are most comfortable using to deliver lessons and demonstrations.

This document will focus on maximizing shop time and utilizing computer/classroom time only as required/necessary. The classroom time should be used to support the work that will be performed in the wood shop, creating a deeper understanding and connection to the work and the students. More classroom time may be required during the initial planning stage and be needed less as the project progresses.

Unit Topic: Bentwood Box

BC Ministry Woodwork 10 Learning Outcomes	
Big Ideas	<ul style="list-style-type: none"> • User needs and interests drive the design process. • Social, ethical, and sustainability considerations impact design. • Complex tasks require different technologies and tools at different stages.
Applied Design	<ul style="list-style-type: none"> • Understanding context - Engage in a period of research and empathetic observation • Defining - Identify potential users and relevant contextual factors for a chosen design opportunity and identify criteria for success, intended impact, and any constraints • Ideating - Identify and use sources of inspiration and maintain an open mind about potentially viable ideas • Prototyping - Choose a form for prototyping and develop a plan that includes key stages and resources and evaluate a variety of materials for effective use and potential for reuse, recycling, and biodegradability • Testing - Conduct the test, collect, and compile data, evaluate data, and decide on changes • Making - Identify and use appropriate tools, technologies, materials, and processes and use materials in ways that minimize waste • Sharing - Decide on how and with whom to share product and processes and demonstrate product to users and critically evaluate its success
Applied Skills	<ul style="list-style-type: none"> • Develop competency and proficiency in skills at various levels involving manual dexterity and woodworking techniques • Identify the skills needed, individually or collaboratively, in relation to specific projects, and develop and refine them
Applied Technologies	<ul style="list-style-type: none"> • Evaluate impacts, including unintended negative consequences, of choices made about technology use • Evaluate the influences of land, natural resources, and culture on the development and use of tools and technologies
Content	<ul style="list-style-type: none"> • Project design opportunities • importance of woodwork in historical and current cultural contexts of First Nations, Métis, or Inuit communities, and other cultural contexts • ethics of cultural appropriation in design process • identification, characteristics, properties, and uses of wood from various species • choices related to the sustainable use of wood • uses and creation of plans and drawings • techniques for stock breakout and woodworking using a variety of tools and equipment, including stationary power equipment • function, uses, and role of portable and stationary power equipment in the creation of a project • function and use of hand tools

Lesson(s)	Objectives	Materials	Activities	Assessment
1. Research	<ul style="list-style-type: none"> demonstrate proper cultural respect understand the bentwood joining process in comparison to other joining methods 	<ul style="list-style-type: none"> Classroom Pencils and erasers Graph paper Access to computers 	<ul style="list-style-type: none"> Watch: Kwakiutl, Kwakwaka'Wakw, wood carver displays his craftsmanship, Mungo Martin, 1963 (Youtube) <p>Class brainstorm (in talking circle):</p> <ul style="list-style-type: none"> How to respectfully address another person's culture. Methods and Protocols. Online research of different bentwood box designs Compare and contrast bentwood box corners to other forms of joining (advantages & disadvantages) 	<ul style="list-style-type: none"> Teacher will observe students as they work together to question their understanding of Indigenous culture and technologies
2. Preparation	<ul style="list-style-type: none"> create a plan to budget and build the bentwood box 	<ul style="list-style-type: none"> Classroom Pencils and erasers Graph paper Access to computers 	<ul style="list-style-type: none"> Materials and Budgeting. Cost & where to get them. Making plans. Box height, width, depth, and thickness. 	<ul style="list-style-type: none"> Student made plans and budgeting
3. Bentwood Box Sides	<ul style="list-style-type: none"> Create the bentwood box sides using wood shop machines and tools in a safe manner 	<ul style="list-style-type: none"> Access to an equipped Wood shop with machines and tools needed for project. Cedar 1"x6" boards for class 	<ul style="list-style-type: none"> Demonstrate steps and machines necessary to create the bentwood box sides Use Bentwood Box plans to work through steps to create side 	<ul style="list-style-type: none"> Teacher will observe students as they work and question their understanding of the machines and the processes used
4. Steaming the Sides	<ul style="list-style-type: none"> Stream bend the sides using steam process to create square box 	<ul style="list-style-type: none"> Machined and prepared side piece Steam box or other steam source (kettle) 	<ul style="list-style-type: none"> Demonstrate steps and machines necessary to steam bend the bentwood box sides Use Bentwood Box plans to work through steps necessary to steam bend sides 	<ul style="list-style-type: none"> Teacher will observe students as they work and question their understanding of the machines and the processes used

5. Bentwood Box Base and Lid	<ul style="list-style-type: none"> • Create the bentwood box bottom and lid using wood shop machines and tools in a safe manner 	<ul style="list-style-type: none"> • Access to an equipped Wood shop with machines and tools needed for project. • Cedar 1"x6" and 2" & 6" boards for class 	<ul style="list-style-type: none"> • Demonstrate steps and machines necessary to create the bentwood box lid and bottom • Use Bentwood Box plans to work through steps necessary to create bottom and lid 	<ul style="list-style-type: none"> • Teacher will observe students as they work and question their understanding of the machines and the processes used
6. Reflective discussion	<ul style="list-style-type: none"> • Assess work through self/peer/teacher assessment 	<ul style="list-style-type: none"> • Classroom • Student projects 	<p>In a talking circle discuss:</p> <ul style="list-style-type: none"> • Design (changes or alterations?) • Analyzing woodworking techniques learned and used (for the project and historically) • Students showcase their work • Self/peer/teacher assess work 	<ul style="list-style-type: none"> • Assessment discussion with class (self, peer, teacher).

Note: Ideally, an Elder or Knowledge Keeper's participation in this project will add greater authenticity, connection, and cultural understanding for students. Indigenous bentwood boxes are not a homogenous thing. Getting a local context will provide local context for the project and give it more relevance.

Project Portfolio: Students should have at the end of the project – Bentwood box design sketches, CAD or hand drawn plans, completed bentwood box, performed a self and peer assessment.

Projects Parameters (Constraints, Expectations, and Showcase):

- Constraints: Materials (red and yellow cedar wood or other wood of choice, steaming method (steam box, kettle, etc.), glue, tape or elastic bands; budget (Materials can be costly and should be budgeted), and timeline
- Expectations: Students will produce proof of research, design sketches, plans, and a bentwood box. They are expected to participate in group discussions and honestly assess their own work as well as others.

- **Showcase:** Students will share their work with the class during a talking circle concluding the project. They will be expected to discuss their processes, design choices, and triumphs and struggles.

Adaptations & Modifications: Accommodations that can be made through differentiated instruction, assessment methods, and used materials to make a learning environment that is flexible and addresses students needs. Depending on needs, skill, and other limitations, students may require parts of their project done for them or extra teacher assistance.

Project Instructions: see Bentwood Box Instructions

Plans: Students will create proper CAD plans of final project plans using CAD or drawn by hand. Examples of sketched design ideas need to be documented and put into project portfolio for assessment and proof of research and design exploration.

Assessment: Beyond the planned self/peer/teacher assessment during the final reflective talking circle, an organized community event could be arranged where students show their work to people outside the school and receive feedback from their community. Further cross-curricular opportunities could be had by connecting with the foods department (if available) and exploring Indigenous cooking methods using bentwood boxes in a practical, hand-on way. An example of bentwood box cooking can be found here:

https://www.youtube.com/watch?v=J53aK_9oHzs&ab_channel=Phillves

Next Steps: This project could very easily lead into exploring Indigenous design elements by having students create designs and paint or carve said designs onto the four faces and/or lid of their bentwood box.

Historical & Cultural Context:

A Brief History of the Bentwood box

Bentwood boxes were made in many different sizes in the old days, with various types of wood being used depending on what they would have been used for, but typically red cedar was used as it is the most versatile. The boxes are made from a single plank which is steamed until pliable and then bent and the two ends are pegged together. The bentwood box is traditionally made and used by the Haida and Kwakwaka'Wakw peoples.

Musical Instruments

Very large bentwood boxes were used for boom boxes (drums) in dance performances and when not in use, these would store the dance regalia.

Clothing and Storage

Large boxes to store clothing in, and medium boxes used for many different purposes - some were even used for cooking in.

Cooking

To use a box for cooking, the cook would first put in all the main ingredients for seafood soup, add the water and any extra ingredients. While the ingredients were being prepared, someone else would be heating up rocks until they were glowing, and then they would be added to the water-tight bentwood box, and voila, you have instant hot soup or stew.

Food Storage and Transportation

Some of the smaller Bentwood boxes were made to carry water, dried salmon, halibut, fruit, and many of the other foods the Haida would need for their long journeys on their dugout canoes.

Burial Purposes

Some boxes were made for burial purposes. Chiefs and people of high esteem were placed in these bentwood burial boxes, and put up in a burial (mortuary) pole, when ready to pay respect to those who went on to the other side.

References:

BC Ministry of Education. (2016). BC's New Curriculum. Retrieved October 04, 2020, from <https://curriculum.gov.bc.ca/curriculum/adst>

Hilary Stewart's Cedar (1995) – a great accessible resource with good illustrations. https://douglas-mcintyre.com/products/9781550544060?_pos=1&_sid=e04bcf9e7&_ss=r

Indigenous Corporate Training Inc. (2012, July 31). A Brief History of the Haida Bentwood box. Retrieved February 1, 2021, from <https://www.ictinc.ca/blog/a-brief-history-of-the-haida-bentwood-box>

Ives, Phil (2013) PI'KWUN: Traditional Cowichan Salmon BBQ, Bentwood Box Cooking & Medicinal Plants. 25:47 min. https://www.youtube.com/watch?v=J53aK_9oHzs&ab_channel=PhillIves