

Video Transcripts

Bentwood Boxes

Pam Spooner (Director of Indigenous Education, Prince George): I'm Gitxsan from the Hazelton area, and I worked as a tour guide. So I took people through our longhouses and we talked a lot about our bentwood boxes.

It's a coastal thing because it's made out of one big plank of cedar tree. And what they do is they carve little edges, three of them, and then they steam the piece of wood, and then they bend it into shape in order to be a box, right? And then they peg the bottom onto those sides. And then once you put water in there, it becomes water stable, right? So it's waterproof. You can carry water in it.

When I went to Squamish to this outdoor school of learning with some of the Nusdeh Yoh students, they cooked a salmon and potatoes in those bentwood boxes. So what they did was they put the water and the food in, and then they dropped the hot burning rocks and it cooks the food so fast. So it's actually amazing.

So, traditionally we use the bentwood boxes for cooking, for berry picking, for carrying water, for storing clothing over the winter, food over the winter. So it was a very practical item that a lot of First Nations people used.

Dr. Jill Baird (Curator, Education, Museum of Anthropology, UBC): So these are more storage boxes or gift boxes. Your regalia, the things that are really important, and if you wanted to give a gift, because the Northwest Coast First Nations were potlatch people, and they gifted material to show their wealth and status. Imagine being gifted something like that.

We're talking about bentwood boxes that were used in the past and in the present. This is by a Kwakwaka'wakw artist, his name is Richard Sumner, and isn't it gorgeous? It's just gorgeous, a contemporary box but he built it and made it in the same way.

Exploring the Bentwood Box: Activity Design

Christine Ho Younghusband (Math and Teacher Educator): How can we bring in First Peoples perspective and worldviews into mathematics as non-Indigenous math educators? So really that was the question that we started with.

Max Sterelyukhin (Teacher): Three of us bringing in our experience and our knowledge together, made really a huge difference because I don't think any one of us would be able to accomplish what some of the ideas that we were able to come up with. So, I think that would be my number one goal too, for people to start thinking about is, getting together and really brainstorming and then doing something together and then spinning off of that.

Christine: The way we approached the project was, here's First Peoples context, here we are in BC, here's our local context, and the bentwood box. How does math fit in? And so we looked at it from a different point of view. We actually turn the paradigm upside down and sort of focusing on ideas like *First Peoples Principles of Learning*. What does this pedagogy look like? It's not going to be a standard deliver in practice and questions. But we wanted students to investigate the bentwood box.

Max: A bit of a challenge at the beginning where we dove into the math first, but then thought, "No, no, no, that's not where we should be looking at." So, let's try to back off and say, "Okay, let's think about how we can center things with the competencies in mind, and then see what math can be applied." And, I think sort of having this backwards design really helped our thinking once we really started to put things together.

Christine: One mindset was as the educator as learner, so we were really clear that we weren't experts in this. We were really clear that we were the learners, and really encourage practitioners out there to be the learner and learn from people in the community and learn from elders and learn from knowledge keepers about the importance of whatever artifact that they've chosen.

Max: The focus was on the place and the setting, which we thought, well, we can talk about those things in the classroom, but we thought it would be a great idea to actually step away from there and actually be in the place where we'd be surrounded by the artifacts, and having people who have knowledge in the subject matter be leading guides for this. So, we just sort of collectively decided that a place such as The Museum of Anthropology would be a really good spot for that to happen.

Christine: The reason why we wanted to put that importance to looking at the context first is one, is math is meaningful. And so when we think about numeracy and we think about mathematics and we think about high school math, sometimes the impression about mathematics is that we're disconnected to it as a person. And so really we wanted to make students to have a connection with the bentwood box to find a personal connection with the box and how the box would be important to those people in that community, and could they relate that to themselves. And when you can connect a student to context, you can connect them to mathematics.

Exploring the Bentwood Box: Activity Delivery

Dr. Jill Baird (Curator, Education, Museum of Anthropology at UBC): We acknowledge that the University of British Columbia and the Museum of Anthropology is on the unceded territories of the Hən̓q̓əmiñəm speaking Musqueam people.

I'm not going to tell you about how to measure a bentwood box or how to talk about volume, or anything like that. I'm going to give you a background about why these objects are made, by whom, and why they were important and why they continue to be important.

Use your eyes first and tell me what you see.

It looks kinda like what?

Student: Watertight.

Oh, what gives you that idea, just by looking?

Student: It's like all the sides are connected, and the bases and the tops look pretty stable.

Un huh.

Would you want to cook in any of these boxes?

Students: No.

Why not?

Student: Because they might catch on fire.

Student: They probably take a long time to make, so why would you risk wrecking it?

Student: If you're going to boil something wouldn't that heat up the wood again and then it would curve back in? Oh, that's interesting.

So you kerf the line, 3 times even though you want a 4 cornered box, why?

Student: You're going to bend it one, two, three and then the two edges come together.

Exactly, exactly, intuitively you're thinking I'm going to be having a four cornered box, so I make 4 kerfs.

Student: No, cause it's like a fraction because one, two, three lines but four it actually splits.

Excellent, excellent!

Why would I want something that looked like a j or an r?

Student: So it stays together.

So it stays together, yes.

Student: So it's not like a square it's got points.

Exactly!

But we can't steam it the same way as the canoe because the canoe has something that can hold water.

Student: They used like strips of cedar bark that were like wet.

Wet

Student: And then you put the rocks in and then it like.

Student: Yeah.

Max Sterelyukhin (Teacher): Nice questions, really participating, well done!

So, it's a sophisticated society that has specialists. And so box making would absolutely be a specialty.

There are trees in British Columbia still existing, most of them are gone, that we would not be able to hold hands and what's it called?

Students: The circumference.

Circumference. So when you're going to make your box, you're going to take a plank from a tree this big or bigger.

Does anybody know what this is?

Student: Looks like a raven squishing people.

Little babies inside of a clam. With adult faces.

Student: Or the raven's protecting them.

Student: He's kinda like just sitting on top.

So it's raven discovering the first humans in Haida Gwaii and in his way, sort of teasing the occupants of the clamshell out.

Different people around the world have different ways of knowing the world and different beliefs. And it's really important that we all accept other people's beliefs, so long as they don't cause harm.

We're going to have a close-up look at the boxes and then you guys, we can talk about it after we do a little drawing exercise, about how you might apply some of the math concepts that Max is asking you to think about.

And these are new boxes made by Northwest Coast artists, based on old ones. So because I want to make you think about not only the math and the skill needed to make a box, but the talent, the eye, the beauty of the box.

Exploring the Bentwood Box: Activity Reflection

Max Sterelyukhin (Teacher): Where's the mathematics in this? I purposely left it for later because I wanted them to have the experience with not just the object itself, but everything that surrounds it, the stories. And, today was a wonderful experience of that, they really got to see and got to learn from the expert.

Owen (student): Well, today we learned about how to make bentwood boxes and how important they are and how they're used in First Nation culture and the importance of the art of the First Nations. I was really impressed on how they bent the wood without breaking it and also the artwork on them. That was beautiful.

Lauren (student): My favorite part was I think the big statue, the raven. That was my really cool. They showed us what they wanted to show us, they talked to us about it, they asked us questions, they really engaged with us. They had something very hands on, which was awesome, and I love learning that way.

Max: Jill was very good at conducting the tour and how she was communicating with the kids by engaging them, by asking them questions. So, that was very interesting to watch them interact and just be mindful of, and open minded to different directions. They spoke about a whole bunch of different things of how it's made, the artistic component of it, just some amazing questions the kids were able to think on the spot and ask.

Jett (student): She was asking us questions, and we had to creatively think of ways to respond by looking and measuring the boxes and canoes.

Jessica (student): When she was talking about how many feet the canoe was and I measured it with my arm. I thought that like it was fun because I could guess about and it was 23 feet I think and I guessed 20.

Lauren: I used my critical thinking most of all because I had to piece different parts of puzzles together to really create the big picture.

Lochlan (student): I think I used my creative thinking because I had to put myself in First Peoples' scenarios and think how I would have done it if I were them.

Max: Once we're back, we're going to talk a little bit more about the geometry of the object, how the folding was actually happening from the math perspective with nets, and then go into surface area and volume, discussing some possibilities and sort of, where does the math come in? And, hopefully, there will be other things as well, but that will be the focal point of where I'd like it to go. But, we'll see how the class discussion unfolds.

Owen: In math right now one of our units was making nets to find out the surface area, so basically what the bentwood box is, it's like a plank of wood and then he put the grooves in it, so that is kind of what we're doing in math. We're making the nets out of the shapes so when you fold it up it's gonna create the box. So, the artist probably put a lot of thought into that and also how big he wanted the box. He probably calculated the surface area and the volume of it.

Lachlan (student): It felt different, but it felt new, and it felt pretty cool, because it's not something you'd usually think you'd apply math to, but it was quite interesting.