Video Transcripts

Will the salmon return? Activity Design

Pam Spooner (Director of Indigenous Education, Prince George): I heard this year that our salmon population has been decreasing and we're trying to figure out why, and then I thought maybe there'd be a relationship between the increase in temperature. So climate change is always an issue for everybody, not just Indigenous people, right? But us as Indigenous people feel it's our job to look after the resources so that they can live on forever for our future generations.

Christine Ho Younghusband (Math and Teacher Educator, UNBC): Even though we can look at the statistical data, whether it's in a math nine and we're graphing and we're looking for trends, or in math 12 where we're looking at data of not just the salmon runs but the temperature of the waters and how it's increasing and how it's negatively influencing the return of the salmons. The First People know that it's not well out there in the environment. And so how do we create this connectedness between this data that we collect, the global issues that are happening that has meaning to all of us, and the localness of First Peoples and why the salmon are so important to the First Peoples and why it's so important to preserve the salmon runs in Adams River.

Pam: The memorable moments in education are usually the ones that you do for yourself. So we're getting them to research and do things and find out facts themselves, plot graphs, watch videos, and see how important salmon is to a lot of First Nations across the province. And that way they can connect and actually feel the emergency, I think, for their future and see what they want to do. Because a lot of times we are empowering youth to believe that they can change the world down the road.

Leona Prince (District Principal of Aboriginal Education, Nechako Lakes): What this activity is doing is that it's having students critically think about the environment, about First Nations issues. Especially with the continuation of tradition. It also shows that math not only exists within a Western context, but there's also Indigenous considerations when we think about math and there's different ways of thinking about math.

Christine: I'm still learning trying to figure out this connectedness between this math knowing and intuition. And for example, when are the salmon running and how many. And if it's a good season or a bad season versus looking at a bunch of data and graphing it and finding that one target point and saying it's going to be a good year or a bad year. There is a relationship between those two worlds. And I think if math educators can find a connection between those two worlds, then we can truly believe that all of us can do math versus some of us and not all of us.

Leona: Indigenous knowledge just isn't an add on, but fundamental to how we should view the world as Canadians. And it's such a challenge to incorporate it into the math curriculum. And I feel that this math activity does that very well because it honors all perspectives. And it's not this perspective in that perspective, it's holding both perspectives up. And there's way more value for students if they can see things as being equal and not being othered.

An Indigenous Approach to Math

Pam Spooner (Director of Indigenous Education, Prince George): I don't want to just tokenize math. I don't want to add the beads, the feathers for counting and say that that's Indigenous curriculum. That's not where it comes from. So to indigenize math has to be based on relationships, our relationship to Mother Earth, our relationship to the animals, our relationship to the trees, our relationships to the water. And so the story has to come before the math activity. So when you're reading or telling the story, or getting an Elder to tell the story, then you're making a connection to that math activity.

Leona Prince (District Principal of Aboriginal Education, Nechako Lakes): I see the greatest impact of incorporating Indigenous perspectives in the curriculum is that you're showing students across the board no matter what grade, what type of school that they go to, the value of Indigenous knowledge as a basis.

Christine Ho Younghusband (Math and Teacher Educator, UNBC): What I've learned is that if we take an Indigenous approach to our pedagogy, that we're holistic, that we're relational, that we're experiential, that learning takes time and patience, that Indigenous knowledge has a role in the work that we do, we can capture all our learners to learn math.

Leona: The salmon, that's the whole basis of this activity, it's a keystone species for many First Nations across the province who are on salmon bearing watersheds, but it also impacts non-Indigenous communities who also use it as a food source and is a part of their seasonal round. And so I think what I'm hoping is that people see that there are really meaningful ways to incorporate Indigenous knowledge without it being piecemeal or an add on.

Pam: It's sharing about Indigenous people, that we knew things. We were scientists, we were mathematicians well before Europeans came. So I think it's important that everybody realizes this. We have this history, we know astrology, we know the stars, the Okanagan have a word called [*Okanagan language*] which means Earth. And when you break up the language, you see that it actually stands for that round spinning land mass, and that tells you that the Okanagan knew that the Earth was round and that it spun. So that's a scientist in it in itself. And that's just learning the language and connecting the meaning to the land within our language. And so it's important for kids to hear these stories and to see and put First Nations and Indigenous people up on that higher pedestal. So I think there's so many math topics that can be brought up just by telling a story. I think that's where math needs to go.

Christine: And only until we ourselves can embrace and be vulnerable to experience what this kind of pedagogy could be like in our classrooms, to know that this pedagogy of First Peoples' principles is inclusive, is relational, adds context, we will never know until we try. So I would just encourage educators out there is to reach out to their local First Peoples community and ask questions and listen and try to find connections. Because in the end we become the learner, too. And we do it for our students.

Salmon Circle

Mike Arnouse, Secwépemc Elder: [*Secwépemc language*] I explain myself in the language of where I'm from and my great great great great grandparents. But I've got thousands of years of stories, so we're going to have to make one short for the way they teach things in classes now.

I explain myself in the language of where I'm from and my great great great great grandparents. But I've got thousands of years of stories, so we're going to have to make one short for the way they teach things in classes now.

The salmon here in this area, it's not just about catching the salmon and eating it. It's a whole part of life. If I decided to go catch a salmon this morning, I would even have to prepare myself before I went down to the river or the lake or the creek, in my spirit and my mind and my heart, and take out all the angers and all the negative things and jealousies so that I try to make myself pure to go down to catch that first salmon. That's what we did. We had ceremonies to do that.

So on our way down to that salmon, we were focused on the history of the salmon itself. How it was given its own life from the creator just like it was given to us. And we just didn't go down and kill, but in the stories that it offered itself to us, because we were weak, and we needed them for our lives. So there were stories that went with it. So when we purified our self to go catch that salmon, we caught the first one, and then we knew we were

purified, and we lifted that salmon up to the east. To the creator first, and then the east, and gave it great thanks for it giving its life, like the creator intended, to give us our lives. When that was finished, we put that salmon back in the water and it swam away. So it would give the message to the rest what we were about to do.

Reminding us of how we should be. There was prayer in the beginning, and offering, thanking the creator for how this was done in the beginning.

What it teaches us in our own life, when we start catching salmon for ourselves, the first thing it teaches is about those prayers. And then when we catch them, it usually brings the whole family down to the fishing rock or the fishing place, or to work together. Right from the tiny ones to watch, to the ones that helped cutting salmon. So it brought the families together to work together, because food was going to be important. How they still in their mind being mindful that it was a sacred thing. Because whatever prayers and the way they're thinking they put into that food will be passed on to the ones that shared it. Brought the families together, and it taught our people to share also. We didn't hoard. We didn't keep salmon for ourselves. It taught us to share and to work together. And then it taught us many things. It taught us about the bears and the eagles and other things that the salmon fed, including the mother earth. Because when the bears took the salmon, or the eagle out through the trees, and the bears took it into the woods, salmon are some of the best fertilizers in the world, to help other things grow.

So there are a whole number of things that need to be considered about the salmon. It's a whole way of life that we consider, even to us and how we must live to earn that gift from the creator. What it is, after some of those things have been said, it will remind you why we must have clean water. Because we're going to eat that salmon. And the ones below us, that live below us, they must eat that too. And therefore, we're not the only ones that are going to eat it. The bears and the eagles and the hawks all have to eat that too. What it teaches us is about our health. Because we must keep the creation the way the creator made that creation, pure. We must try and keep it pure also.

Usually would have a person that takes care of it, and he's a fish chief, or something, that watches that, how we do things. A lot of those people, they call it chief now, but people that put different meanings to it today. But he took care of those things. And he looked at all the families. Some families had people that could catch a fish for them, but there were some that didn't maybe. A mother that lived only with her children, so the protectors usually caught fish for them, and for the weak or sick. Made sure that when the season of the... when the snow came, everyone had enough. And the leader, the fish person that looked after the fish made sure that it would happen.

This is a short story, but there are many, many things that help us to remind us how we must live. That there's respect involved, and sharing, and prayer, and taking care of the land, and taking care of the ones that can't help themselves. And even when we have done all that, and then when we have had our fed with the salmon at our tables, we save the bones. Each one saves the bones. And that leads to another ceremony, because people wonder how do salmon know where to come when it's time to spawn? So when you put the bones in the water with the ceremony, they remember where their ancestors were. Science is trying to figure that out, but we figured that out a long time ago.

So if you live with your home like that, understanding the other creatures that share this land with you, you'll understand what I'm saying. That they're not below us. Human being are not up there. We're the ones that the salmon don't actually really need us. We're the ones that need them. We put those thoughts into our young ones, that that's why they need so much protection, so much loving. Because when you're cutting that salmon up and you put your love and respect into it, that also is passed on, how much we love nature. Because they are part of it. It reminds us that we are also a part of it. Like I said, the eagles and the four-legged animals and the ones in the water and plants, they know what to do. But do we? That's what we've got to find out with how we fit into that circle.