

Miigwech!

We acknowledge generous support from

Rainy River District School Board
Seven Generations Education Institute
N.S. Robertson Foundation
Dr. Eric Jackman Institute of Child Study
Ontario Institute for Studies in Education
University of Toronto
Connected North/TakingITGlobal
La Place Rendez-Vous Hotel and Conference Centre
Kay-Nah-Chi-Wah-Nung Historical Centre



The Robertson Program
Inquiry-Based Teaching in
Mathematics and Science



UNIVERSITY OF
TORONTO

Dr. Eric Jackman Institute of Child Study
OISE | ONTARIO INSTITUTE FOR STUDIES IN EDUCATION



Connected North
TRANSFORMING LIVES THROUGH TECHNOLOGY

Indigenous Knowledge and Mathematics Education: Responding to the TRC's Calls to Action

October 4 and 5, 2017

Fort Frances, Ontario • Treaty #3 Territory

La Place Rendez-Vous Hotel & Conference Centre
Nanicast Complex, Seven Generations Education Institute

Presented by

Seven Generations Education Institute

Rainy River District School Board

The Robertson Program for Inquiry-based Teaching
in Mathematics and Science

Dr. Eric Jackman Institute of Child Study

Ontario Institute for Studies in Education/University of Toronto

Welcome to Fort Frances

Home to nearly 10,000 people, Fort Frances, Ontario is the industrial capital of Northwestern Ontario. More than 100,000 tourists visit the town every summer. It is known for its natural beauty, including 70,000 neighbouring fishable lakes. Both Rainy River and Rainy Lake, located in Fort Frances, offer opportunities for boating, snowmobiling, crosscountry skiing and, of course, fishing. Fort Frances is also home to the Lakers – a Canadian Junior ice hockey team.

While staying in Fort Frances, you may want to visit these local attractions:

- The Logging Tug Hallet - the biggest logging boat on Rainy Lake until it retired in 1974
- Fort Frances Museum - featuring exhibits showcasing local Indigenous culture and community milestones
- The Lookout Tower - offers a scenic view of Fort Frances and Rainy Lake

On Thursday evening after our closing reception, you may want to dine at one of Fort Frances' local restaurants.

- The Harbourage - 1230 Second St E.
- Flint House - 232 Scott St.
- Copper River Inn - 700 Stewart St.
- Boston Pizza - 840 Kings Hwy
- Canasian - 418 Scott St

La Place Rendez Vous Hotel & Convention Centre

We are thrilled to be hosting our conference at The Rendez-Vous Hotel and Conference Centre which has been the Robertson Program's home away from home more than 15 times during this collaboration.

To access the internet during the conference, use the Rendez-Vous network with the password **travel11**.

The dining room is open daily from 6 a.m. to 10 p.m.

Welcome to our conference

Boozhoo! Welcome to the conference on Indigenous Knowledge and Mathematics Education: Responding to the TRC's Calls to Action. This gathering is an opportunity for educators from across the province to make meaningful connections and build relationships with the goal of improving mathematics teaching within a framework of reconciliation and reciprocal learning.

This conference highlights the partnership among the Seven Generations Education Institute, the Rainy River District School Board and the Ontario Institute for Studies in Education (Dr. Eric Jackman Institute of Child Study, University of Toronto). Since 2013, we have been working together to focus on Indigenous educational leadership and innovative ways to teach and learn mathematics. We appreciate the contributions of Elders, classroom teachers, administrators, Anishinaabe educational counsellors, and families. Above all, we thank the children in Treaty #3 territory who continue to inspire and astonish us.

We thank you for being here and bringing your expertise and insights to the gathering.

Miigwech from the organizing committee:

Heather, Angela, Brent, Aimee, Shelly, Bev, Joan, Zach, Larisa, Julie and Jisoo



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Day 1: Wednesday, October 4

7:00 – 8:45 Breakfast at La Place Rendezvous/Registration - Welcome

8:45 – 9:00 Walk/Drive to Nanicost Complex for Fall Harvest:
Dagwaaginimaawindoosijigewin

9:15 – 9:30 Drumming and Traditional Opening with Elder Nancy Jones

9:30 – 11:30 Participate in Dagwaaginimaawindoosijigewin

11:30 - 12:15 Travel to Kay-Nah-Chi-Wah-Nung Historical Centre
(Manitou Mounds)
Bus will leave from Fall Harvest/Nanicost Complex

12:15 - 1:00 Lunch at Kay-Nah-Chi-Wah-Nung Historical Centre
Keynote Speaker: Maurice Switzer
"The Treaty Relationship and Reconciliation"

1:00 – 3:00 Tour of Kay-Nah-Chi-Wah-Nung Historical Centre and
the Manitou Mounds

3:00 – 3:45 Return to La Place Rendez-Vous by bus

3:45 – 5:00 Break

5:00 – 6:00 Meet & Greet at La Place Rendez-Vous

6:00 – 7:15 Welcome and dinner
Meal blessing by Elder Nancy Jones

7:15 – 8:15 Keynote Speaker: Dr. Anton Treuer
"Thriving in Indigenous Space:
What Does It Look Like and How do We Get There? "

Day 2: Thursday, October 5

7:30 – 9:00 Breakfast at the Rendez-Vous

9:00 – 9:30 Opening remarks and overview of the M4YC North West
project

9:30 – 10:30 Keynote Speaker: Dr. Ruth Beatty
"Exploring Culturally Responsive Mathematics"

10:30 – 10:45 Coffee Break

10:45 – 11:45 Choice of morning workshops

11:45 – 12:45 Lunch

12:45 – 1:15 Panel Discussion: Language Revitalization
Jason Jones, Marjolaine LaPointe and Liz Osawamick

1:15 – 2:15 Choice of afternoon workshops

2:15 – 3:00 Group Discussions: Responding to the TRC's Calls to Action

3:00 – 3:15 Traditional Closing
Elder Nancy Jones

3:15 – 5:00 Closing Reception

Evening Dinner on your own
Please see the list of local restaurants at the front of this
program. The restaurant at the Rendez-Vous will also be open.

Wednesday keynote speaker

7:15 pm at La Place Rendez-Vous Hotel

Thriving in Indigenous Space: What Does It Look Like and How do We Get There?



Dr. Anton Treuer

Dr. Anton Treuer is Professor of Ojibwe at Bemidji State University and author of 14 books. He has a B.A. from Princeton University and an M.A. and Ph.D. from the University of Minnesota. He is Editor of the Oshkaabewis Native Journal, the only academic journal of the Ojibwe language. Dr. Treuer has presented all over the U.S. and Canada and in several foreign countries on *Everything You Wanted to Know About Indians But Were Afraid to Ask*, Cultural Competence

& Equity, Strategies for Addressing the "Achievement" Gap, and Tribal Sovereignty, History, Language, and Culture. He has sat on many organizational boards and has received more than 40 prestigious awards and fellowships, including ones from the American Philosophical Society, the National Endowment for the Humanities, the National Science Foundation, the MacArthur Foundation, the Bush Foundation, and the John Simon Guggenheim Foundation.

His published works include *Everything You Wanted to Know About Indians But Were Afraid to Ask*, *Warrior Nation: A History of the Red Lake Ojibwe* (Winner of Caroline Bancroft History Prize and the American Association of State and Local History Award of Merit), *Ojibwe in Minnesota* ("Minnesota's Best Read for 2010" by The Center for the Book in the Library of Congress), *The Assassination of Hole in the Day* (Award of Merit Winner from the American Association for State and Local History), *Atlas of Indian Nations*, *The Indian Wars: Battles, Bloodshed, and the Fight for Freedom on the American Frontier* and *Awesiinyensag* ("Minnesota's Best Read for 2011" by The Center for the Book in the Library of Congress).

Wednesday keynote speaker

12:15 pm at Kay-Nah-Chi-Wah-Nung Historical Centre

The Treaty Relationship and Reconciliation



Maurice Switzer

Maurice Switzer, Bnesi, is a citizen of the Mississaugas of Alderville First Nation, where his grandfather was Chief from 1905-1909. He is Zhgaag (Skunk) Dodem Anishinabek, and Okwaho (Wolf) Clan Haudenosaunee, passed down from his great-grandmother from Tyendinaga. He is also proud of his Jewish ancestry. He was the first Indigenous student at Trent University, and the first Indigenous publisher of a daily Canadian newspaper.

He served as Director of Communications for the Union of Ontario Indians and the Assembly of First Nations, and has been faculty at First Nations Technical Institute, Huntington University, Canadore College, the Banff Centre's Aboriginal Leadership program, and the University of Sudbury's Indigenous Studies program.

Maurice volunteers for several arts and literacy organizations and the North Bay Indian Friendship Centre, and operates Nimkii Communications – a public education practice that features presentations on the Treaty relationship for students, educators, and government employees, using Wampum Belts as visual aids. In 2003 his public education work for the Union of Ontario Indians received an Award of Honour from the Canadian Race Relations Foundation and he was inducted into the Nipissing District Human Rights Hall of Fame. In 2010 he was a recipient of an Anishinabek Nation Lifetime Achievement Award.

His 2011 graphic novel *We are All Treaty People* has sold over 8,000 copies, and related elementary and secondary teachers' resource kits are being used in schools across Ontario.

Thursday keynote speaker

9:30 am at La Place Rendez-Vous Hotel

Exploring Culturally Responsive Mathematics



Dr. Ruth Beatty

Ruth teaches the mathematics methods course for preservice P/J teacher candidates in the Faculty of Education at Lakehead University (Orillia). Currently Ruth is working with members of Anishinaabe and Cree communities and educators from Ontario school boards to research the connections between Indigenous ways of knowing mathematics and the Western mathematics found in the Ontario curriculum. The goal of this research, funded by a

SSHRC Insight Development Grant and by the Ontario Ministry of Education, is to collaboratively design culturally responsive mathematics instruction for First Nations students, and to learn from and incorporate Indigenous pedagogical perspectives in inclusive classroom settings.

Elder Ogimaawigwanebiik (Nancy Jones)

Chi Miigwech to Ogimaawigwanebiik (Nancy Jones) for her deep wisdom and extraordinary contribution to this project. She is an Ojibwe Elder from Nigigoonsiminikaaning First Nation and belongs to the Wazhashk (Muskrat) Clan. Her first language is Ojibwe and she speaks the Rainy Lake Dialect. She has helped develop the *Dibaajimowinan* book, a compilation of stories told by Elders written in Ojibwe with English translations. She is currently working to populate *The Ojibwe People's Dictionary with Ojibwe* words. Ogimaawigwanebiik is a retired Ojibwe language elementary school teacher who is sought after for her knowledge of venerable words. She also helps with cultural teachings through her Twitter account @askanelder, responding to questions through YouTube videos.

Thursday language panel

12:45 pm at La Place Rendez-Vous Hotel

Language Revitalization

Jason Jones, Marjolaine LaPointe, Sherry Mattson and Liz Osawamick will share their insights and experiences as Anishinaabemowin speakers and discuss the importance of language revitalization for reconciliation.

Panelists

Jason Jones

Jason Jones is an Ojibwe language teacher for Rainy River District School Board. He has been teaching himself Ojibwe and developing Native language resources for learners of Ojibwe. Jason has played an integral role in revitalizing Anishinaabemowin in Treaty #3 territory.

Marjolaine LaPointe

Marjolaine LaPointe is Deer clan from Ardoch Algonquin First Nation. As the Ojibwe teacher at Roseneath Centennial Public School, one of her goals is to show her students how Anishinaabemowin functions as a profoundly mathematical and scientific language.

Sherry Mattson

Sherry Mattson is the Kindergarten to Grade 12 First Nation, Métis & Inuit Consultant with the Kawartha Pine Ridge District School Board. Sherry is from the Mississaugas of Alderville First Nation.

Liz Osawamick

Liz Osawamick (Giniw Miigwan) is originally from Wikwemikong Unceded First Nation located on Manitoulin Island. She is related to the bear clan and is of the beaver clan. She is of the Ojibwe and Odawa Nation. She is currently a Native Language teacher with the Kawartha Pine Ridge District School Board and a course instructor at Trent University. A Water Walker and activist, Liz facilitates language immersion programs and cultural teachings within First Nation communities.

Workshops - Thursday at 11:15 am

Birch Bark Baskets: Honouring Indigenous Approaches to Learning in Mathematics

Presented by Danielle Blair

Explore and connect traditional knowledge of birch bark basket making to mathematics experience in school. We will consider the significance of learning through culture-based design and technology, and how authentic collaboration with Indigenous partners can simultaneously support the resurgence of culture and student achievement in mathematics.

Exploring the Mathematics of Looming

Presented by Pam Agawa and Ruth Beatty

Delve into the algebraic, spatial, and proportional reasoning inherent in Anishinaabe beadwork. Through creating looming designs, we will explore the connections among two-dimensional and three-dimensional representations of quantity and space. We will also analyze video clips of students engaged in this activity.

Gaa-izhi-azhenaadiziyang nindinimaaganinaan: Connecting with our First Family

Presented by Nyle Johnston

This interactive workshop looks to the tradition of storytelling as a foundation for learning. Participants will explore the use of visual art as a catalyst for student voice and interdisciplinary teaching and learning.

Using Technology to Enhance Students' Spatial-Visual Skills and Number Sense: Stories from Anishinaabe Classrooms

Presented by Jane Tom, Julie McQuaker and Joan Moss

In this interactive session, experience how a series of "quick image" activities can be used daily to strengthen children's geometric reasoning, spatial-visual skills and number development. Learn how these engaging activities support students' understanding of symmetry and congruence, geometric transformations, and the conservation of area. These playful, engaging activities invite all children to participate and use spatial sense to develop strong number sense.

Workshops - Thursday at 1:00 pm

The Power of Inquiry and the Outdoor Classroom

Presented by Marge Hale, Sara Empey, Gail Jones and Glenda Potson

Step into the exciting world of a Kindergarten class and their outdoor classroom. Explore with us as we share our experiences, from the fascination of spiders and ants, to birds and trees, to animal tracks, tiny mushrooms and every living thing in between! This workshop will pique your interest and inspire you to start your own outdoor classroom.

10 Playful Math Activities to Inspire the Development of Number Sense, Geometrical and Spatial Thinking in Young Children

Presented by Zoe Donoahue and Carol Stephenson

Who knew that Pentominoes could be used to teach so many mathematical concepts? Join us in this interactive session as we share 10 engaging activities using Pentominoes to inspire mathematical, geometrical and spatial thinking in young children. Explore symmetry, tessellation, area and perimeter, coordinates, and composing and decomposing two-dimensional shapes and three-dimensional objects. Explore the power of simple materials that you can use in a wide variety of mathematical and playful ways.

Using Story to Teach Math

Presented by Nicole Bell and Claire Mooney

This workshop will present storytelling as math pedagogy. The use of story to teach math with children and teacher candidates will be presented. Following the models shared by the presenters, workshop participants will have the opportunity to explore the teaching of math through other Indigenous stories.

Workshop presenters

Pamala Agawa

Pamala Agawa is an Anishinaabe kwe from Batchewana First Nation and a mom to three girls ranging in ages from 4-10. Employed as a Curriculum Coordinator for First Nation, Métis and Inuit Education in York Region District School Board, Pamala's goal is to support the system in deepening understanding of Indigenous Ways of Knowing. Her passion for learning is modelled in how she supports and facilitates learning with her colleagues.

Nicole Bell

Nicole Bell is Anishnaabe (Bear Clan) from Kitigan Zibi First Nation in Quebec. She is the mother of five boys and resides in Burleigh Falls, Ontario. Nicole is the founder of an Anishnaabe culture-based school for Indigenous children in Junior Kindergarten to Grade 12. She has an honors B.A (Trent), B.Ed. & M.Ed. (Queen's) and Ph.D (Trent). Nicole is currently an Associate Professor at the School of Education at Trent University. Her research areas include: Indigenous culture-based education, infusion of Indigenous knowledge into public schooling and teacher education, decolonization and healing, and Indigenous research theory and methodology.

Danielle Blair

Danielle Blair is currently on contract with the Council of Ontario Directors of Education (CODE). She serves as Provincial Mathematics Lead with the Ministry of Education. In addition to supporting Ontario Boards of Education in Mathematics and Leadership, she has been involved in research projects related to the teaching and learning of Mathematics K to 12 and the facilitation of professional learning for educators for over 15 years. This year marks the sixth year Danielle has been involved in a multi-year multi-community research project, "Connecting Indigenous and Western Mathematical Ways of Knowing" with Dr. Ruth Beatty, Lakehead University, and several Ontario Boards of Education and First Nations communities.

Workshop presenters

Zoe Donoahue

Zoe Donoahue has taught most grades between Junior Kindergarten and Grade 5, at the Toronto District School Board and, for the past 15 years, at the Dr. Eric Jackman Institute of Child Study Lab School at the University of Toronto. Zoe's interests include inquiry-based learning and mathematics teaching and learning, in particular, the role of discourse in mathematics classrooms. She has worked in Ontario schools with the Math For Young Children group for the past four years and has published and presented at conferences about this work and about her own research.

Sara Empey

Sara Empey is the Designated Early Childhood Educator at Mine Centre School. She grew up in Devlin, Ontario. Sara loves spending time outdoors with family, friends and her students.

Marge Hale

Marge Hale has 33 years of experience in education. She is currently helping young children explore, inquire and engage their natural curiosity at Mine Centre Public School. Marge believes that when children are given the opportunity to regularly be in nature, they develop a connection to the earth, coming to respect plants, animals and each other. Mine Centre School's outdoor classroom received a recognition of excellence award from the Rainy River Board of Education in 2016. Her account of her class' inquiry process is to be published in a new edition of *Natural Curiosity*.

Gail Jones

Gail Jones is the Cultural Coordinator from Nigigoonsiminikaaning First Nation. She works at Mine Centre School planning, organizing and supporting cultural activities for all of the students and staff. Gail participates in many cultural activities in Northwestern Ontario and Northern Minnesota.

Workshop presenters

Nyle Johnston

Nyle was born and raised on his beautiful reserve on the Saugeen Peninsula (Bruce Peninsula). He took a keen interest in painting and art at a very young age. Sources of his artistic inspiration include Woodland painters, Story Tellers and the traditions of his culture. Nyle paints the stories of the Anishinaabe Nation in order to raise awareness of their unique histories as they in turn inform his process. He is an Oshkaabewis (Traditional Helper) and experienced muralist.

Nyle Johnston's presentation was made possible through the generous support of Connected North/TakingITGlobal.

Julie McQuaker

Julie McQuaker is the Grade 3/4 teacher at Mikinaak Onigaming School at Onigaming First Nation. She has been teaching there for more than three years and been involved with Math For Young Children for much of that time. Julie has presented with the M4YC team at the Ontario Association of Mathematics Education conference.

Claire Mooney

Claire Mooney is a Senior Lecturer at the School of Education and Professional Learning at Trent University. She coordinates the undergraduate Teacher Education Stream and is a member of the math team. She is passionate about helping students develop their identities as teachers. She is interested in teachers' development of mathematical and pedagogical knowledge. She has published a series of books for pre-service teachers that directly address these topics.

Workshop presenters

Joan Moss

Joan Moss is an Associate Professor Emerita in the Department of Applied Psychology and Human Development and at the Dr. Eric Jackman Institute of Child Study at OISE/University of Toronto. Her research has focused on the design of developmentally-based curricula highlighting areas of mathematics that are traditionally challenging for students. Since 2011, Joan has been co-principal investigator of Math for Young Children (M4YC), where her research has been focused on the teaching and learning of spatial reasoning and geometry in early years. This work has brought her to Fort Frances on numerous occasions where she has had the opportunity to work with amazing educators and form life-long friendships.

Glenda Potson

Glenda Potson is an Educational Support Professional working with the Kindergarten class at Mine Centre School. She is from Seine River First Nation. Glenda loves the outdoors and working with young children.

Carol Stephenson

Carol Stephenson has taught at the Dr. Eric Jackman Institute of Child Study for more than 20 years, exploring what's possible in primary and kindergarten education. Focusing particularly on inquiry, math and play, she has been invited to share her work at conferences and institutions in Canada, the United States, China, Japan and India. She considers her ongoing connection to Math For Young Children as the most powerful professional development opportunity she has been lucky enough to participate in.

Jane Tom

Currently working with Grassy Narrows First Nation, Jane Tom is a First Nation Student Success Program teacher with Seven Generations Education Institute. Prior to this, she was a teacher at Pegamigaabo School (Big Grassy First Nation) for 20 years. Working with the M4YC team inspired Jane to rethink the importance of math in all areas of the curriculum. Jane has presented with the M4YC team at the Ontario Association of Mathematics Education conference.