[Indigenous Knowledge and Mathematics Education]
CoP ANNUAL IMPLEMENTATION AND ANNUAL REPORT COMPONENTS
November 1, 2016 – August 31, 2017

PRINCPLES

How did the CoPs address the 3 principles of the MKN?

Addressing Teacher Identified Needs

- Annual surveys of, and annual interviews with, teachers and school (CoP)
    - Survey questions about identified needs
    - Annual feedback from teachers involved
- Assess the extent to which CoP activities addressed teacher identified needs reported in the annual survey (CoP)
    - Survey questions about the alignment of the teacher-identified needs to CoP activities
- Assess the extent to which teachers, both those in the CoP and beyond the CoP, were involved in CoP activities (CoP)
- Membership of the CoP to be specified
- Instances of annual collaboration and planning meetings will be reported

Implementation Plan

Anticipated Outcomes (See Appendix A)	**Activities (e.g., events, resource development, meetings etc.)**	**Anticipated Outputs (if applicable)**	**Number and type of participants (if applicable)**	**Anticipated Timeline**	**Monitoring and Evaluation** (Required: Surveys and interviews for teachers, parents, etc.)
1, 3, 4, 5,	Two day meeting in June with parties from School boards currently engaged in work with FNMI students and content to establish the needs of teachers in the classrooms and expectations of communities for	Plans for August resource development and cultural competency learning session		June 28 and 29	Pre survey of participants and communities involved in joint work with school boards. Report outlining the initial needs of teachers regarding

	cultural connections as well as high expectations for success in the Ontario Math curriculum				FNMI cultural competency and links to math.
2, 3, 4, 5,	"On the land" learning opportunity with community elders and knowledge keepers for teachers and program participants. This meeting will deal with cultural teachings as they connect to the land, which is one of the defining elements of Indigenous Knowledge in Ontario. This session will honour the oral culture and community connections that are integral to Indigenous ways of knowing. This session will work to make strong connections between educators, researchers, Elders and indigenous communities. It is important that Indigenous communities be involved in this CoP right from the beginning; Indigenous voices must drive the learning and the research.	Collection of stories and learning through video and audio recording of sharable knowledge. Collection of written resources and lesson ideas or plans that will serve as a framework for work in the coming school year.		1 week in August	Interviews with participants, Elders and community members to gauge starting places for the integration of Indigenous knowledge in math curriculum Post survey with participants to gauge the effectiveness of this learning session in meeting their initial needs around cultural connections. Survey will also set out goals for work in the next phase of the project.
3	Members:				

	Pamala Agawa and Andrew McConnell YRDSB FNMI Coordinator and Teacher Advisor				

Report

Changing Attitudes in Mathematics

- Show evidence that the work of the CoP has a mathematical focus that is conceptually rich for students and teachers – each CoP identifies such activities
- The design of student experiences creates opportunities for students to share their learning (especially in the form of mathematical surprises and conceptual insights) with family, friends, and the wider community
    - Annual survey will also include data about the extent to which activities of the CoP engaged family and the wider community (CoP)
- Any instances of student-level impact will be reported (CoP)
    - Survey questions about attitudes toward mathematics (drawn potentially from EQAO questions)
- Evidence of artifacts (actionable resources, case stories, etc.) that were shared on the MKN website that reflect the above criteria
    - Data collected on number of artifacts created and shared

Implementation Plan

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					for teachers, parents, etc.)
1, 4	Survey of a number of Indigenous communities regarding current teaching practice	Report of initial data results regarding general attitude towards math	?	June	Survey of community members, elders and students regarding the effectiveness of current math curriculum and teaching approaches
1, 4	Survey of a number of Indigenous communities in area of participating boards regarding desire for cultural connections to math	Report of initial data results regarding general attitude towards math	?	June	Survey of community members, elders and students regarding their hopes for programming connections between math and Indigenous culture

Report

Fostering Inclusion

- Annual surveys of, and annual interviews with, teachers and school (CoP), compiled annually (MKN). Survey diverse groups engaged in the activities (CoP)
- Report on how the design of student experiences foster differentiated learning
- Differentiation levels of artifacts and quantity of artifacts reported. Sow evidence that the

design of student experiences fosters differentiated learning: for example, student experiences have a low floor (allowing engagement with minimal prerequisite knowledge) and a high ceiling (offering connections to more complex relationships and more varied representations).

Implementation Plan

Anticipated Outcomes (See Appendix A)	**Activities (e.g., events, resource development, meetings etc.)**	**Anticipated Outputs (if applicable)**	**Number and type of participants (if applicable)**	**Anticipated Timeline**	**Monitoring and Evaluation** (Required: Surveys and interviews for teachers, parents, etc.)
2	Survey of multiple Ontario school boards	Report of initial data regarding perceptions of cultural connections to math	?	June	Survey of board consultants, administrators and teachers to gauge the level of understanding of Indigenous culture and their perceptions of connections between Indigenous knowledge and current math curriculum
4, 5, 6	Survey of current Integration strategies being used in various boards	Report of initial work that has been tried	?	May and June	Survey of FNMI leads from various Ontario school boards to gauge what work has been attempted to make cultural connections to math as well as the effectiveness of these exercises in both math instruction and

					cultural competency.

Report

ACTIVITIES/OUTCOMES

What activities have the CoPs engaged in to achieve network outcomes through their work?

CoPs will produce/report on the following annually:

Resource Production

1. Actionable evidence-informed, differentiated resources
   - Lesson plans/supporting resources
   - One case study/CoP
   - One research mini/CoP
2. Research Syntheses
   - One plain language summary/CoP

Implementation Plan

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1, 4, 5, 6,	Anishinaabe beading to teach patterning. Co-planning and co-teaching between	Report and video on the connections that can be established	20	Completed	Interviews with community members, teachers,

	community member(s) and classroom teachers with board and ministry support Co-create a research mini with members of CoP	between traditional beading and math curriculum around patterning		August	students and education officer from reserve administration Post on MKN website

Report

Capacity Building

3. Networking and scaling up (meetings, conferences, additional funding, etc.)
    - Number of first-time teacher participants
    - Number of teacher participants who have participated in other provincial initiatives beyond CoPs
    - Number of extended projects
    - Number of potential leveraging grants
4. CoP-led workshops (4 annually)
    - Number of teacher participants
    - Number of math-teacher lead participants
    - Number of administrator participants
    - Number of participants outside of the CoP
    - Overall number registered to attend

Implementation Plan

Anticipated Outcomes (See Appendix A)	**Activities (e.g., events, resource development, meetings etc.)**	**Anticipated Outputs (if applicable)**	**Number and type of participants (if applicable)**	**Anticipated Timeline**	**Monitoring and Evaluation** (Required: Surveys and interviews

					for teachers, parents, etc.)
1, 2	Initial June meeting at Trent University		Number of first-time teacher participants Number of teacher participants who have participated in other provincial initiatives beyond CoPs	June 28, 29	Interviews with teachers involved
5, 6,	August workshop: learning on the land with community members, elders and knowledge keepers		Number of teacher participants Number of math-teacher lead participants Number of administrator participants Number of participants outside of the CoP Overall number registered to attend	Week in August	Interviews with all participants

Report

Knowledge Dissemination

5. Arts-informed knowledge dissemination
    - One story-based research mini
    - Up to one research song
    - Post-concert/activity surveys
6. TeachOntario
    - CoPs utilize TeachOntario as a digital space for KM and collaboration – report on number of instances of collaboration
    - CoPs make use of existing resources available on TeachOntaio – report on number of artifacts posted
7. Publications
    - One article/CoP for each of the target audiences (practitioners, scholarly community)
8. Conferences
    - One conference/CoP per year

Implementation Plan

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2, 6	Creation of video from August learning session that highlights key learning, stories and cultural connections to math curriculum	Video and audio recording Scholarly article outlining key teachings from the session	?	August	Interviews with participants

Report

ADDITIONAL INFORMATION

1. List and attach copies of any other relevant final documents or other products including marketing and promotional materials; media coverage; developed resources; testimonials; participant feedback, surveys, analysis, and other performance measurement tools/mechanisms, and so forth, that demonstrate the success and achievements of the CoP.
2. List any adjustments to the annual knowledge mobilization plans.
3. Highlight some promising practices that have shown evidence of improving mathematics outcomes for students.
4. Provide any OTHER information that may be relevant to this report and/or demonstrate the success of the CoP.
5. Provide details of any challenges/barriers faced while implementing CoP activities or working towards achieving network outcomes. Include steps taken to address them. Highlight issues of continuing concerns and potential solutions to them.
6. Lessons Learned: Based on your experience in implementing CoP activities and working towards achieving network outcomes, provide details on what can or should be done differently and why.

Report

Appendix A
Anticipated Outcomes

1. Increased awareness, understanding, use and sharing of evidence-informed practices for mathematics by engaging teachers in co-designing mathematical learning experiences for students that offer surprise and conceptual insight, and opportunities to share their learning with family, peers, and the wider community, changing mindsets around professional learning and attitudes towards mathematics;
2. Enhanced capacity of school districts, organizations and universities in Ontario to collaborate, to access existing, as well as generate new, evidence-based knowledge that can positively impact the teaching and learning of mathematics, and efficiently meet the goals and directions of Ontario curriculum and policy;
3. Increased collaboration, partnerships, and networking between and among the Ministry, organizations, communities, networks and associated communities of practice across the education sector;
4. Improved student engagement, and equity of outcomes and well-being for marginalized students by enhancing learning and participation opportunities;
5. Advanced mathematics learning for First Nations, Métis and Inuit students, built on ways that have been identified through traditional technologies and design, as well as expanding the lens of educators to deepen their understanding of the benefits of integrating Indigenous "ways of knowing" into their practice; and
6. Sustained growth, in breadth and depth, of networks that provide evidence-based knowledge sharing to inform mathematics program, policy, and practice, based on existing and other sources of funding.