



**INDIGENOUS FUTURES
IN ENGINEERING**
at Queen's University

Presented By: *Kayla Ford, Program Lead
Indigenous Futures in Engineering, Queen's University*

Changing the Face of **STEM Education**

*Building Pathways for Indigenous Youth through the First Nations STEM Futures
Academy*



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Presentation Schedule

- Welcome; Opening
- About Indigenous Futures in Engineering
- About First Nations STEM Futures Academy
- Discussion & Reflection
- Questions
- Closing



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Ohén:ton

Kariwahtéhkwen

Words Before All Else/Opening Address



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Changing the Face of **STEM Education**

Indigenous Futures in Engineering



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Who We Are:

Indigenous Futures in Engineering

- Queen's University initiative
- Supporting Indigenous youth from K-12 through postsecondary
- Building culturally grounded STEM opportunities
- Strong partnerships with communities across Canada





STEM education must reflect the diversity, creativity, and brilliance of Indigenous youth.

Our Shared Vision

Our Guiding Beliefs



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Community
Engagement

Pathways to
Postsecondary

Mentorship &
Support

Retention &
Leadership

We don't just open doors for Indigenous youth, we walk through them together.

Our Four Pillars of Impact

Community Engagement	Pathways to Postsecondary	Mentorship & Support	Retention & Leadership
<ul style="list-style-type: none">• Culturally grounded STEM outreach in First Nations schools• Co-created workshops linking STEM with traditional knowledge• Over 60 communities reached annually	<ul style="list-style-type: none">• Guidance on high school course selection and application processes• Bridge programs connecting youth to Queen's STEM opportunities• Summer and campus-based experiences that build familiarity and confidence	<ul style="list-style-type: none">• Indigenous undergraduate mentors paired with younger students• Ongoing online mentorship and connection circles• Peer networks that foster identity, confidence, and academic resilience	<ul style="list-style-type: none">• On-campus supports for Indigenous students in engineering• Leadership opportunities through outreach and mentorship roles• Creating future Indigenous professionals who return to inspire others

Meet Our Team

Melanie Howard, Turtle Clan of the Mohawk Nation at Kanehsatà:ke, is the **Director of Indigenous Futures in Engineering** at **Queen's University**.

She leads the conception and development of programs that support Indigenous students in STEM, from early elementary through graduate studies.

Melanie is also proud to serve as the advisor to the **Q-AISES Rocket Team**, Canada's first all-Indigenous engineering design team.



Meet Our Team

Kayla Ford, from Tyendinaga Mohawk Territory, is the Program Lead of the **First Nations STEM Futures Academy** within **Indigenous Futures in Engineering** at **Queen's University**.

She designs and delivers innovative virtual and in-person STEM programming for First Nations students in Grades 8–12, fostering pathways to post-secondary education and future careers in STEM.



Meet Our Team

Hillary Lanigan is the **Indigenous STEM Outreach Coordinator** for **Indigenous Futures in Engineering** at **Queen's University**.

Hillary engages with K–8 students through both in-community school visits and virtual workshops delivered via **Connected North**, focusing on engineering design, offline coding, and online coding activities that inspire curiosity and creativity in STEM.



Meet Our Team

Valeri Pilgrim is the **Program Lead for STEM Indigenous Academics (STEMInA)** within **Indigenous Futures in Engineering** at **Queen's University**.

Valeri works collaboratively with three faculties across campus to deliver academic support, mentorship, and community-building opportunities for Indigenous students in STEM.





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Our Impact Across Canada

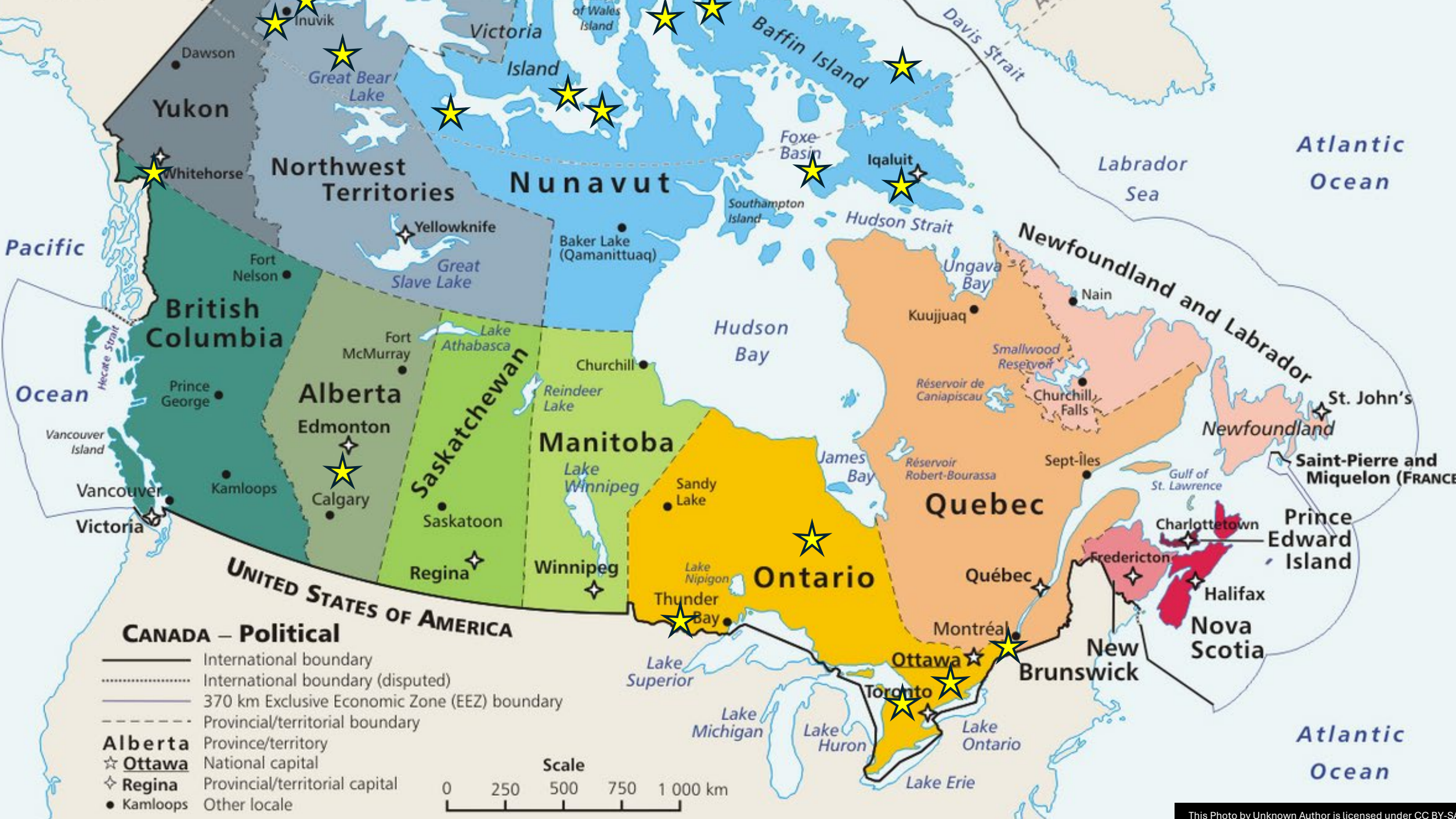
Our Reach Across Canada



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Challenges Facing Indigenous Youth in STEM

Understanding the Barriers



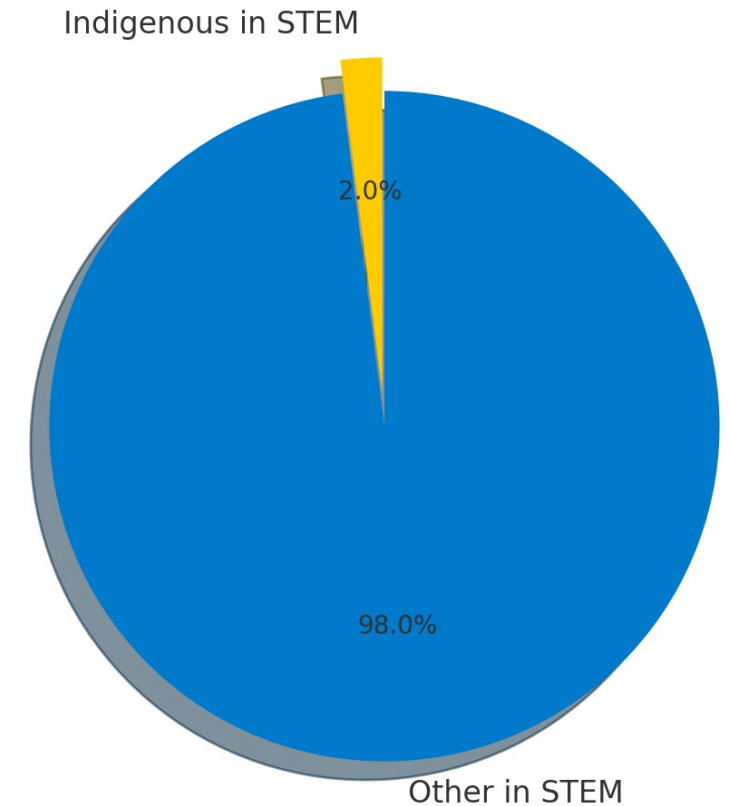
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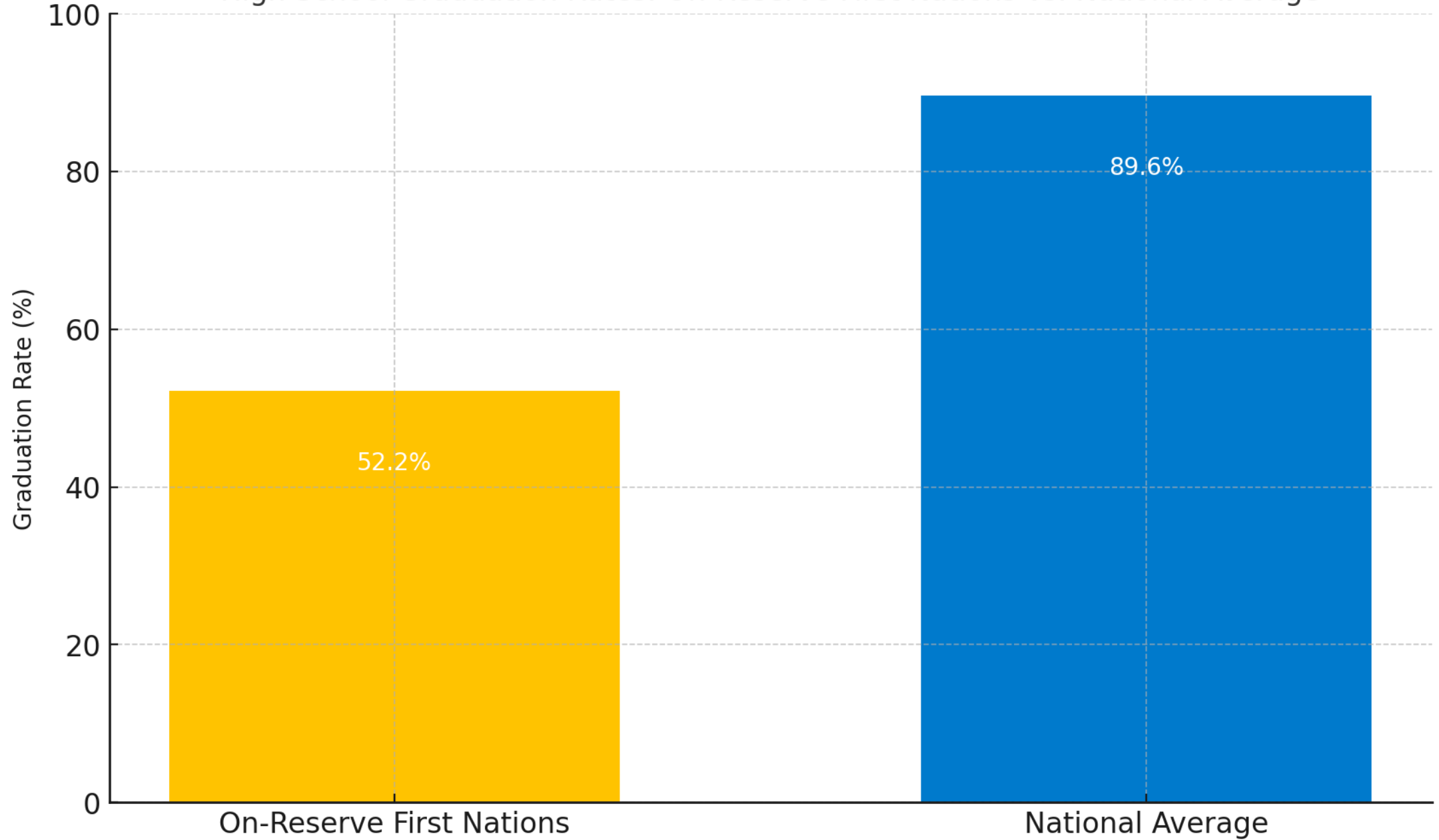
Barriers to Indigenous Representation in STEM

- Limited Access to STEM Resources
- Geographic & Structural Barriers
- Underrepresentation & Lack of Role Models
- Cultural Disconnect in STEM Education
- Confidence & Belonging Gaps



Systemic barriers — not a lack of interest or ability — limit Indigenous participation in STEM.

High School Graduation Rates: On-Reserve First Nations vs. National Average



Good Roots:

Exploring STEM Through Culture, Curiosity, and Identity

- Good Roots introduces STEM as a space where Indigenous youth can explore, create, and imagine without limitations.
- It's where students discover their strengths in science, technology, engineering, and math in ways that honour culture, land, and identity.
- It's about planting curiosity and helping students see that STEM is a place where their ideas matter.



Kahtehrí:io-Mno Ojibiikaan
GOOD ROOTS

Rising From Strong Roots



Good Roots awakens the spark helping students see themselves in STEM, discover their gifts, and explore new possibilities with confidence and pride.

The First Nations STEM Futures Academy nurtures that spark guiding students through high school with mentorship, culture, community, and meaningful STEM experiences.

Together, they create a pathway where Indigenous youth grow, thrive, and rise as leaders in STEM.

Lighting the Fire for Future Innovators



A four-year pathway that supports Indigenous high school students through science, technology, engineering, and math in ways that honor culture, identity, and community.

The Academy provides:

- meaningful mentorship from Indigenous role models
- hands on learning and STEM exploration
- cultural support and a sense of belonging
- guidance through academic and career pathways
- connection to a national network of Indigenous youth and professionals

The Academy helps students grow with confidence, curiosity, and pride as they shape their futures in STEM.



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What Does STEM Look Like in Your Community?

Discussion and Reflection



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Collaboration at the Heart

Partners in Action



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The **First Nations STEM Futures Academy** is made possible through the generous support of our donors.

Together, these partners are investing in the next generation of Indigenous leaders, innovators, and changemakers



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Leading With Identity And Purpose

Closing Reflection



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Nya:wen | Miigwech | Thank You

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