Science Ambassador Program

2017 Annual Report

What We Do:

The Science Ambassador Program provides hands-on science activities and teaching support in Northern Indigenous community schools. The Science Ambassadors are senior undergraduate and graduate science, math, and engineering students with an enthusiasm for science education. Working together with community educators, the Science Ambassadors plan and deliver culturally-relevant science activities in community school classrooms, plan and participate in extra-curricular science clubs and activities, and help students explore science education and career opportunities. The Science Ambassador Program gets students excited about learning by connecting science concepts and ideas to their community knowledge and traditions.

2017 marks 11 years of the Science Ambassador Program bringing hands-on science education activities and support to Northern Aboriginal communities. The program was offered in 12 communities this year, reaching more than 120 teachers and educational assistants, working with more than 2678 students (94% of First Nations or Métis ancestry).

The Science Ambassador Program is offered by the University of Saskatchewan

University of Saskatchewan

With support from:

College of Arts & Science
College of Agriculture & Bioresources
College of Pharmacy & Nutrition
School of Environment & Sustainability
College of Education
College of Kinesiology
College of Engineering
College of Nursing
College of Medicine

Thank you to our sponsors:

Cameco

NSERC CRSNG

Science Odyssey
Powered by NSERC

SSW Student Summer Works

Manitoba

NSERC CWSE-Prairies
Women in Science & Engineering

SIGA

Canada
Canada Summer Jobs 2017

UCN

North Rim
Premium People since 1984
A wholly owned subsidiary of RESPEC

Our Goals

- to provide fun and engaging science experiences to students and teachers in Northern Aboriginal communities
- to have Science Ambassadors serve as academic role models to younger generations
- to form learning partnerships with teachers, schools, and communities
- to engage communities and post-secondary institutions in dialogue to enhance science education overall
- to broaden the pool of future U of S students and STEM graduates.

Science Odyssey

May 12 – 21, 2017

One of the highlights of this year's program was the Rube Goldberg Challenge. Partnering with the Natural Science and Engineering Research Council (NSERC's) Science Odyssey program, students in grades 5-8 in every community worked as a classroom to create a Rube Goldberg machine, a device designed to achieve a simple goal in the most complicated way possible. For 10 days in May, students worked with their Science Ambassadors to design and build their devices, learning about forces, kinetic and potential energy, and engineering design practices. The students then created videos of their machines to post on the University of Saskatchewan Science Outreach Twitter account to compete for the prize of the Best Rube Goldberg Machine. Comments from teachers indicated that the challenge allowed students to develop and express important skills: "It was exciting! Every class was different. The Rube Goldberg machine was a huge success. It helped build teamwork skill and gave some students an opportunity to shine, which I hadn't seen before."
Grade 7 teacher, Stony Rapids

What Teachers are Saying:

I liked how the Ambassadors interacted with the students and the community. They became a part of our community!!

Grade 5 teacher, Cumberland House

It's great for the students to see/do science with people who are so passionate about it. The students need to see that a science-based career is possible for them, too.

Grade 12 teacher, Île-à-la-Crosse

The Ambassadors were very respectful and friendly. Their presence in this school helped to motivate students in a positive way toward pursuing a science career.

Grade 11 and 12 teacher, Pinehouse Lake

Excellent projects!!! Wonderful hands-on programming!!! I can't say enough about what a fantastic program this is!!! Thanks a million for supporting this program to encourage our future generations to love science!

Grade 2 teacher, Beauval

The Science Ambassador Program has spiked student interest in the fields of science over the past years. Students look forward to their arrival and participate with enthusiasm. Keep sponsoring this program!

Grade 7 and 8 teacher, Île-à-la-Crosse

All schools should have resident Science Ambassadors to collaborate with teachers and offer support for hands-on activities!

Grade 4 teacher, Green Lake

What Students are Saying:

It was fun to be part of activities we did and I would like to be a Science Ambassador one day.
Grade 7, Black Lake

When I grow up I'm going to be a science teacher. I wish you guys come back again.
Grade 4, Fond du Lac

The program was my overall favourite to come to the school. Hopefully we will see them back next year!!!
Grade 9, Île-à-la-Crosse

I want to be a scientist when I grow up. Science is cool.
Grade 7, Île-à-la-Crosse

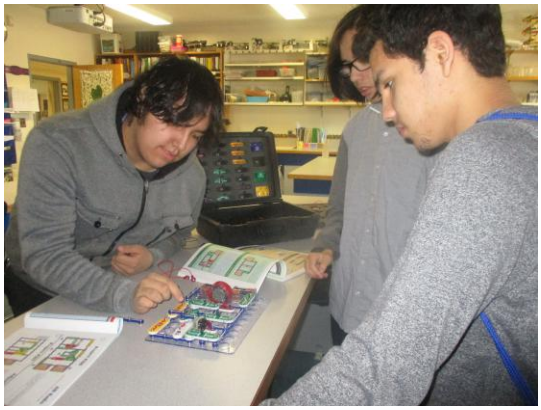
Thank you for this amazing experience with science and math.
Grade 4, Pinehouse Lake

I love science and I can't wait till you come back again. Thank you!
Grade 4, Black Lake

Top Activities of 2017:

The Pas, MB – Elephant toothpaste and ice cream (chemistry)
Beauval – Oscillating Reaction
Stony Rapids – Rube Goldberg Challenge
Pinehouse Lake – Candy rock cycle and balloon-powered vehicle challenge
Wollaston Lake – Science fair and Mentos rockets
Île-à-la-Crosse – Solar ovens to make s'mores; earthquakes and structures
Green Lake – Cinder cone volcanoes; wax and sand hot spots; Geology day
Cumberland House – Robot wrestling; water-powered rocket competition
Opaskwayak Cree Nation, MB – Geology dig
Buffalo Narrows – Slime geometry; borax crystal candles
Black Lake – Grasshead people; laser target competition using mirrors and reflections
Fond du Lac – Boat design challenge

Science Ambassadors work with community educators to provide fun, hands-on, and culturally-responsive activities for students. They combine student interests with their science knowledge and expertise to create memorable and engaging learning experiences.



By the Numbers:

99% of teachers rated the program as good (4) or very good (5). The average rating was 4.84/5 on a 5 point scale.

91% of students rated the program as good (4) or very good (5). The average rating was 4.55/5 on a five point scale.

80% of students said they liked science more after participating in the program. The average rating was 4.23/5 on a five point scale.

88% of teachers noted that student interest in science increased during participation in the program. The average rating was 4.35/5 on a five point scale.

76% of teachers indicated that their own personal interest in science increased during participation in the program. The average rating was 4.16/5 on a five point scale.

70% of students indicated that they were likely (4) or very likely (5) to take math or science classes in university. The average rating was 4.04 on a five point scale.

64% of students indicated that they were likely (4) or very likely (5) to choose a career in math or science. The average rating was 3.82 on a five point scale.

The Science Ambassador Program is working to engage students and promote interest in science and math education. Student ratings indicating an interest in pursuing science or math education in university and careers in science or math reveal the true impact of the program, as Indigenous students from Northern communities are significantly less likely to consider post-secondary education or careers requiring additional education compared to both Aboriginal and non-Aboriginal students living in city centres (Statistics Canada, 2016).

Kiskiaumatowin:

a Swampy Cree word used to describe a type of two-way learning where teacher and student are learning from one another in an interactional way, changing them both (Goulet & Goulet, *Teaching Each Other,* UBC Press, 2014).

I have developed some great skills in learning, which have led me to have strong self-confidence and have sharpened my passion for science!

Saruul Uuganbayar

My experience as a Science Ambassador was amazing. I learned a lot, got out of my comfort zone, and developed new skills. My passion for science and making a positive impact in the community are one of the reasons I decided to apply for this program, and I would do it again!

Celeste Nunez

Each year the Science Ambassadors are hosted in culturally-active community schools where they are actively learning about their students, their communities, and life in the North.

We thank the educators, Elders, and Knowledge Keepers in each community who have acted as mentors to the Science Ambassadors, inviting them to learn and to share their experience in community and cultural events.

Our Science Ambassadors use what they learn from the teachers and community elders to make cultural and community connections, making the science concepts they communicate relevant to the everyday experiences and cultural traditions of the community.

Each year our Science Ambassadors return to campus with a new understanding of what science can look like, new perspectives on learning and knowledge, and a new appreciation for Indigenous culture.

I also had the opportunity to seek information from a local elder regarding the design of tools and watercraft used by Indigenous peoples. The elder took the time to show me his models of canoes and boats used by Indigenous peoples across Canada. We had the chance to discuss the construction process and the materials used for each component of the watercraft. This was incredibility interesting to me as an engineer!

Andrew te Linde

2017 Science Ambassadors

- Aimen Aziz: 3rd year, Education
- Braden Barber: 4th year, Agriculture & Bioresources
- Harshina Brijlall: 4th year, Biology, B.Ed
- Bryce Bulgis: 4th year, Education, Biology, English
- Danielle d'Entremont: PhD. Pharmacy & Nutrition
- Andrew Doepker: 4th year, Mechanical Engineering
- Katrina Dorosh: 4th year, Geological Sciences
- Sejuti Fatima: 3rd year, Electrical Engineering
- Ashley Harris: 3rd year, Physics, Environmental Biology
- Alex Heimlick: 4th year, Chemistry
- Franco LeRoux: 2nd year, Pharmacy & Nutrition
- Jordan Mihalicz: MSc. Environment and Sustainability
- Claire Murchison: 4th year, Kinesiology
- Celeste Nunez: 2nd year, Geological Sciences
- Courtney Onstad: 4th year, Geological Sciences
- Saman Rahbar: M.Eng. Mechanical Engineering
- Aravind Ravachandran: 4th year, Physics
- Nicole Reyes: 3rd year, Physiology and Pharmacology
- Andrew te Linde: 1st year, Engineering
- Saruul Uuganbayar: 3rd year, Biology
- Farwa Wajahat: 3rd year, Psychology
- Xuan Zhao: 3rd year, Kinesiology

Science Ambassadors come to us with strong science backgrounds, excellent communication skills, enthusiasm for teaching and learning, and lots of creativity. They share STEM expertise, time, perspectives, and stories; acting as academic mentors who work hard to connect with teaching and learning needs in their host communities.

2017 Communities

Beauval

Black Lake Denesuline First Nation

Buffalo Narrows

Cumberland House

Fond du Lac

Northern Village of Green Lake

Stony Rapids

Pinehouse Lake

Île-à-la-Crosse/Sakitawak

Hatchet Lake Denesuline First Nation, Wollaston Lake

The Pas

Opaskwayak Cree Nation

Thank you to those who have supported our program's success:

All of our 2017 communities for providing accommodations and warm welcomes to each of the Science Ambassadors

Matthew Dunn, Indigenous Peoples Initiatives Coordinator, College of Engineering for providing professional development and instruction on Indigenous design

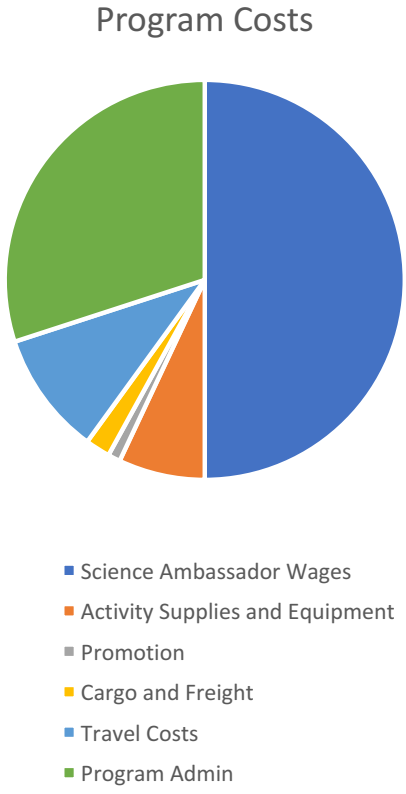
The Science Outreach Office, College of Arts and Science for providing Science Ambassador professional development support and teaching materials

To each of the elders, teachers, administrators, parents, and students – thank you for welcoming the Science Ambassadors into your schools and communities!

Expenses

The greatest program expenditure is the salaries and benefits paid to the Science Ambassadors. As the pay rate is determined by the University of Saskatchewan Student Pay Scale which adjusts wages according to year and degree level, this program cost varies year to year depending on our recruitment of graduate vs. undergraduate STEM students as Science Ambassadors, averaging approximately 50% of the total program cost.

Supply and equipment costs (7%), including consumable supplies and reusable materials, are kept relatively low by generous loans and in-kind donations provided by the University of Saskatchewan's STEM Colleges and private sector donors including: Thermofisher Scientific, the Saskatchewan Dental Hygienists' Association, Agriculture in the Classroom Saskatchewan, and PotashCorp.



Program operation costs (30%) include Science Ambassador training, printing of program manuals, telephone, fax, postal costs, and office supplies and equipment. These costs also cover an annual Science Ambassador symposium held to gather program feedback, plan future programming directions, and communicate the program outcomes to the campus community and broader educational network. Additionally, admin costs cover a 0.5 FTE program coordinator position to oversee program operations.

Travel Costs (10%) include air travel and compensation for the use of personal vehicles for transportation to and from the program communities. The travel costs for our program are substantial as our program serves several geographically isolated communities, a cost that is balanced by the benefit of providing much needed resources that are otherwise unavailable due to these access challenges.

Cargo and freight costs (2%) cover the delivery and return of science supplies and equipment to the fly-in communities.

Promotional costs (0.1%) include brochure flyer, and report printing, website maintenance, teacher professional development activities, and staff development.

2018 and Beyond…

Since its start in 2007, the Science Ambassador Program has shown steady and sustainable growth, providing high-quality, hands-on science experiences and meeting STEM teaching and learning needs for thousands of students in our Northern communities.

Our program pairs students with strong science knowledge with communities in need of teaching support and resource access to create a successful learning partnership that we look forward to continuing in the years ahead.

For 2018, if funding is available, we hope to continue our learning partnership with each of the communities that participated in the program in 2017, and we are looking to increase access to our program for new communities and schools with the help of our sponsors and supporters.

If you are interested in learning more about the Science Ambassador Program, or if you would like to participate as a program sponsor, host community, or Science Ambassador, please contact us!

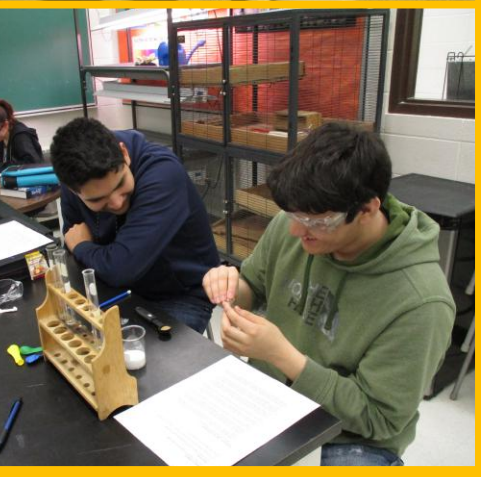
The Science Ambassador Program
Room 140 - 1121 College Drive
Saskatoon, SK S7N 0W3

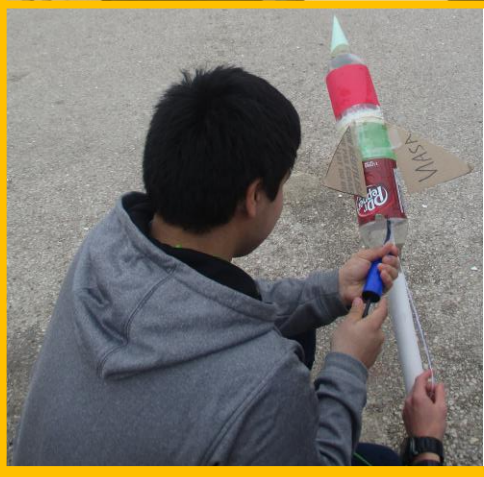
Phone: 306-966-5776
Fax: 306-966-8839
Email: sci.ambassadors@usask.ca
Website: artsandscience.usask.ca/scienceoutreach

Table of Contents:

Science Ambassador Program



Thank you for your support!