



Annual Report

2019–2020



University
of Manitoba

MISSION STATEMENT

We envision the youth of Manitoba inspired and empowered by the possibilities of science, engineering and technology. We envision a Manitoba where all youth, regardless of background, gender or socio-economic status are enriched in their science, math and technology education. The young people today will become Manitoba's vibrant and diverse workforce of leaders tomorrow; these youth will be empowered by their knowledge and appreciation for science, engineering and technology.

OUR MANDATE

WISE Kid–Netic Energy works to ignite an interest and life–long passion of science and engineering in all Manitoba youth.



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of Manitoba

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Youth · STEM · Innovation

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INTRODUCTION

In 1990 WISE (Women in Science and Engineering) Kid-Netic Energy was formed at the University of Manitoba. It has grown to be one of the largest STEM (Science Technology Engineering Math) not-for-profit outreach programs in Canada. Our organization offers science and engineering workshops, clubs, camps and events to youth from Kindergarten to Grade 12 throughout the entire province of Manitoba. Annually we reach between 25 000 and 50 000 youth depending on funding levels. Our approach is simple – present STEM in messy, memorable and engaging ways so Manitoba youth feel

motivated to learn more and more. We reach all Manitoban youth. We particularly target underrepresented youth like girls, Indigenous youth and youth facing socio-economic challenges. There is a saying, “You can’t be what you don’t see”, and in response to this saying we try and get as many youth doing hands-on, experiential activities with amazing young role models pursuing undergraduate degrees in science and engineering. We hope you enjoy reading this annual report. Please contact us if you have any questions or concerns.





Thank you for taking the time to give one-on-one attention to my students with exceptional needs, making coding basics accessible.

Jemma Desilets, Ste. Anne Elementary, Ste. Anne, MB

OUR INSTRUCTORS

Our instructors are our champions. All of our instructors are undergraduate university students pursuing engineering, science, or STEM-related degrees. From that pool we preferentially hire women, Indigenous peoples, and other minorities. We pride ourselves on hiring undergraduate students that reflect the diversity of students throughout Manitoba. Each is trained to deliver all of our Manitoba science curriculum-based workshops. They also receive classroom management and Indigenous cultural training. We provide meaningful employment for our instructors to develop strong leadership and presentation skills.

During the fall and winter our instructors work part-time delivering outreach close to Winnipeg to accommodate their classes and labs. In the spring and summer they work full-time and travel extensively to all corners of the province including Thompson, Flin Flon, Cranberry Portage and Dauphin in northern Manitoba, dozens of rural communities throughout southern Manitoba, and First Nations communities like Pinaymootang First Nation, Wanipigow First Nation, Skownan First Nation, Norway House Cree Nation, Sapotaweyak Cree Nation, and Sagkeeng First Nation.



Vole Stick Sheet

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Name _____

Date _____





OUR WORKSHOPS

Showcasing a variety of science and engineering topics, our workshops are highly interactive, and bring technology and hands-on activities to classrooms.

wisekidneticenergy.ca/workshops

OUR WORKSHOPS

In 2019-2020, we offered over 20 different curriculum-based workshops to schools, and four different hands-on workshops to communities organizations including libraries and daycares. Overall, we had another exceptional year of workshop delivery. Between April 1, 2019 to March 31, 2020 we saw an outstanding 48 704 students. Our hands-on, Manitoba science curriculum-based workshops for Kindergarten to Grade 12 are a hit in classrooms all over the province of Manitoba. Teachers have enthusiastically invited us into their classrooms and we could not be more excited to be working with passionate educators. We offer a wide variety of choices for budding scientists and engineers, and are always updating our programs to keep them current. We facilitate dissections, design-build-test challenges and plenty of fun educational games. We bring all the supplies and clean up afterwards. We

charge minimally and offer the same rates for schools within and outside the city of Winnipeg. In November, 2017, we were able to start offering 6 of our workshops for free, thanks to CanCode, a federal government initiative to promote education in digital literacy and computational thinking. We strive to spark curiosity and build momentum towards positive experiential learning. Please go to our website (www.wisekidneticenergy.ca) to view our current workshop catalogue in French and English.

FUN FACTS ABOUT WORKSHOPS

- Total audience of 48 704 from Kindergarten to Grade 12
- Total CanCode audience of 22,619
- 2170 workshops delivered April 1, 2019 – March 31, 2020
- 1054 free CanCode workshops delivered April 1, 2019 – March 31, 2020



Well prepared, presented and energetic!
High engagement from all my students.
Love it! Thank for making such a valuable
program be accessible to students. Great
exposure to coding especially for females.

Ms. Ambram, Stanley Knowles School, Winnipeg, MB



WORKSHOP DELIVERY BROKEN DOWN BY SCHOOL DIVISION

April 1, 2019 – March 31, 2020

DIVISION	KIDS PER DIVISION	DIVISION	KIDS PER DIVISION
Borderland	297	Portage Rose	719
Franco-Manitobaine	156	Prairie Spirit	199
Evergreen	42	Red River Valley	941
Frontier	845	River East Transcona	5692
Garden Valley	1056	Seine River	1283
Hanover	2229	Seven Oaks	2321
Interlake	628	St. James-Assiniboia	1698
Lord Selkirk	479	Sunrise	780
Louis Riel	3148	Western	250
Mystery Lake	1829	Winnipeg	5134
Pembina Trails	4302	Other/Private	9006
Portage la Prairie	2049		
		TOTAL STUDENTS	45 083

Excellent presentation; kids loved it and we will definitely book another presentation next year.

K.Fehr, Ingleside School, Grand Hutterite Colony, near Oakville, MB



A young boy wearing a red baseball cap and a black t-shirt is sitting at a white table in a classroom. He is looking towards the camera with a slight smile. The background shows a wooden door and a bulletin board.

OUR CAMPS

Camp programming is fun, interactive, and hands-on. It includes indoor and outdoor activities, and incorporates everything from physical activity to creative design and build challenges, to playing with digital technology.

wisekidneticenergy.ca/camps



OUR CAMPS

In spring/summer of 2019 we ran week-long science and engineering camps in northern Manitoba (Cranberry-Portage, Thompson, Flin Flon and Dauphin), southern Manitoba (Altona, Morden and Steinbach), First Nations communities (Wanipigow First Nation, Skownan First Nation, Sapotaweyak Cree Nation, Norway House Cree Nation, Sagkeeng First Nation and Pinaymootang First Nation), and within Winnipeg through Immigrant and Refugee Community of Manitoba (IRCOM), and the Boys & Girls Club of Winnipeg.

In 2018, WISE Kid-Netic Energy was fortunate to be one of the recipients of CanCode funding through our Actua network membership. The CanCode program invested \$50 million over two years, starting in 2017-18, to support initiatives

providing educational opportunities for coding and digital skills development to Canadian youth from kindergarten to grade 12 (K-12). The program aimed to equip youth, including traditionally underrepresented groups, with the skills and study incentives they need to be prepared for the jobs of today and the future.

Instead of offering a separate Codemakers camp with the CanCode funding, we made two out of five camp days into Codemakers days where the participants got to explore different types of robots, learned how to code, played games using computational thinking among other hands-on activities. The other theme days included Agriculture/Material Science, Chemistry and Natural Disasters.

I love this camp and everything about it! I really want to study engineering when I grow up! Please come back next year!

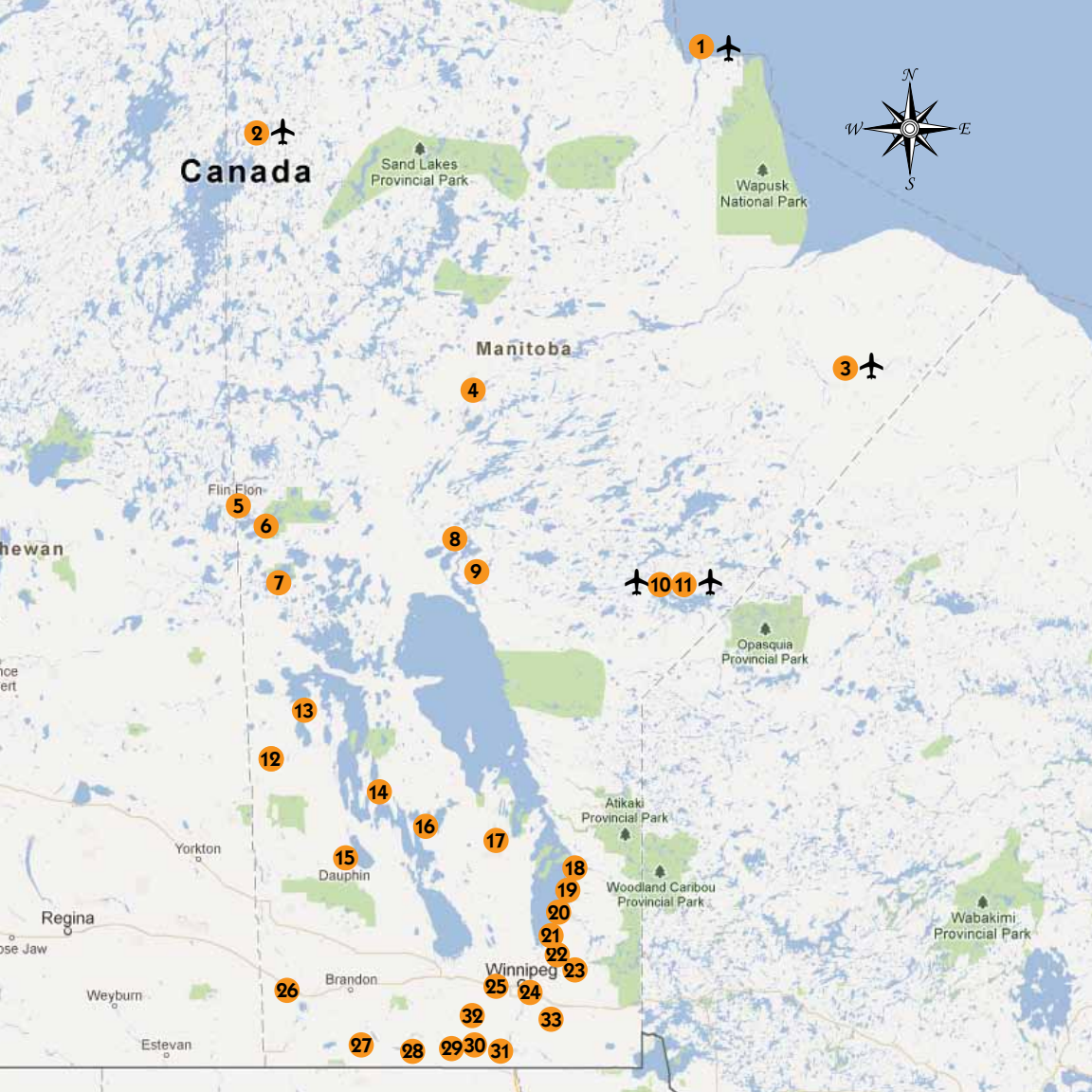
Camper, Sapotaweyak Cree Nation, MB

/code:makers_
actua Google™

With funding from

Canada





Canada

Manitoba

Flin Flon

Yorkton

Regina

Weyburn

Estevan

Dauphin

Brandon

Winnipeg

Sand Lakes
Provincial Park

Wapusk
National Park

Opasquia
Provincial Park

Atikaki
Provincial Park

Woodland Caribou
Provincial Park

Wabakimi
Provincial Park



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1. CHURCHILL
2. BROCHET
3. SHAMATTAWA
4. THOMPSON
5. FLIN FLON
6. FRONTIER SCHOOL DIVISION CAREER X
7. THE PAS & OPASKWAYAK CREE NATION
8. CROSS LAKE FIRST NATION
9. NORWAY HOUSE CREE NATION
10. WASAGAMACK FIRST NATION
11. GARDEN HILL FIRST NATION
12. SWAN RIVER
13. SAPOTAWAYAK CREE NATION
14. SKOWNAN FIRST NATION
15. DAUPHIN
16. PINAYMOOTANG FIRST NATION
17. PEGUIS FIRST NATION
18. WANIPIGOW FIRST NATION
19. LITTLE BLACK RIVER FIRST NATION
20. SAGKEENG FIRST NATION
21. BROKENHEAD OJIBWAY FIRST NATION
22. TYNDALL
23. BEAUSEJOUR
24. WINNIPEG
25. ST. FRANCOIS-XAVIER
26. VIRDEN
27. KILLARNEY
28. CLEARWATER
29. MORDEN
30. WINKLER
31. ALTONA
32. CARMAN
33. STEINBACH

Highlighted locations received week-long camps in Summer 2019

 fly-in location



Force = Load

$\text{Pressure} = \frac{\text{Force}}{\text{Area}}$

$\text{Pressure} \times \text{Area} = \text{Force}$





OUR CLUBS

Our clubs include hands-on activities, field trips, and mentor events on a weekly basis. Club members have the opportunity to interact with professionals, see the heart of the University of Manitoba, and explore science and engineering on a more in-depth level.

wisekidneticenergy.ca/clubs

GIRLS CLUBS

Offering quality extra-curricular science and engineering programs is crucial to the development of Manitoba's future scientists and engineers; making intentional space in these programs for groups who are underrepresented in STEM is a priority for WISE Kid-Netic Energy. We have a well-established Girls Club program that gives kids opportunities to get excited about science and engineering in a setting outside of their science classroom. This year we offered

Girls Club for 19 Grade 6-8 students in the fall, and 20 Grade 3-5 students in the winter on Saturdays at the University of Manitoba. Our Inner-City Girls Club hosted by Pinkham School included 20 Grade 3-6 students, and was offered throughout the fall and winter. In both programs, participants meet with their instructors each week to explore a new STEM topic, with a mixture of youth-selected and instructor-selected themes.

The best part of Girls Club was the variety in programs, and including field trips! Kept my daughter engaged, and excited to attend each week!

Parent of a Girls Club Member, Winter 2020





ROBOT FIGHT CLUB

In the winter of 2015, we started our All Girls Robot Fight Club, with the goal of having more girls participate in the Manitoba Robot Games programming challenge. This year, we had our largest group yet with 11 participants. Unfortunately, due to Covid-19, the club was cut short by two weeks, and the Manitoba Robot Games were postponed/cancelled. Nevertheless, the girls learned how to code the Lego Mindstorms, and had a guest come in to talk about coding opportunities for women in the Winnipeg gaming industry. Our instructors have continued to make the All-Girls Robot Fight club a fun and ever-evolving learning environment for the participants, and we look forward to see it continue next year.



DISSECTION PROGRAM

The goal of this free enrichment program is to offer students an opportunity to prepare for post-secondary labs and classes, and/or discover whether anatomy, biology and even medical science are areas of potential interest to them career-wise. The students had a chance to dissect a sea cucumber, frog,

rat and dogfish. In the fall we had 25 participants, and in the winter we had 22. (Unfortunately our winter session was cut short by two weeks due to Covid-19.) Special thanks to Winnipeg School Division for sharing their space, and teacher Leanne Romaniuk, who volunteered to supervise the program.

I enjoyed this program a lot and I learned many new things that will prepare me for my future studies in post-secondary.

Program Member





A person wearing a light blue short-sleeved shirt is working on a piece of machinery in a workshop. The background shows various tools and equipment. A large blue semi-circle is overlaid on the right side of the image, containing the text.

OUR OUTREACH

WISE Kid-Netic Energy is dedicated to inspiring all youth to explore Science and Engineering. We have special initiatives to provide outreach to underrepresented groups.

wisekidneticenergy.ca/outreach



ADOPT-A-CLASS

Our Adopt-a-Class Program has been offering inner-city, or socio-economically challenged schools free workshops since 2012. This program recognizes the challenges of certain neighbourhoods, and provides programming to schools that might not otherwise be able to access our services. This year's schools included Brooklands, Champlain, David Livingstone, Dufferin, Elmwood, King Edward, Niji Mahkwa, Norquay, Pinkham, River Elm, Sisler, Southeast Collegiate

and William Whyte. Between September 2019 and March 2020 we have already delivered 45 workshops, and visited 937 youth. We are so grateful to those who participated in the UM's crowdfunding campaign to support this program. Just over \$7000 was raised. And as always, we are thankful to Actua, The Winnipeg Foundation, and other private donors for their contributions. Learn how you can contribute by visiting our website.

They really enjoyed how hands on everything was, and the fact they could each get their own materials.

Madison Bell, Niji Mahkwa School, Winnipeg, MB





INDIGENOUS OUTREACH



In the spring of 2019 we delivered workshops and camp to Skownan First Nation, Sapotaweyak Cree Nation, Wanipigow First Nation, Pinaymootang First Nation and Sagkeeng First Nation. Just through our Grades 4-6 camp alone, we reached just over 400 youth.

As always we partnered with Frontier School Division to bring Career X to Cranberry-Portage at Fontier Collegiate Institute. Students from small communities

throughout the north without high schools joined us in Cranberry-Portage for a week of camp activities.

In addition, during the summer we delivered camp in Norway House Cree Nation, as well as at Ma-Mow-We-Tak Friendship Centre in Thompson.

Finally, we had another successful year of delivering breakfast and STEM programming once a month to the young women at Adolescent Parent Centre.

This program is absolutely amazing! I am a teacher at Sagkeeng Junior High, and the facilitators came to our school a couple of weeks ago. The students were very engaged, and learned a lot. At the end we wrote thank you letters as a class, and everyone wanted to take part. I would highly recommend this program to all schools.

Sharilee Swaity, Sagkeeng First Nation, MB

MAKE YOUR MOVE

Make Your Move is a unique annual outreach opportunity that invites young female leaders in Grade 8 to a special event designed to challenge and to inspire them. Engineers Canada has set the ambitious goal of 30 per cent female participation in engineering by the year 2030. In support of this goal, we hope to influence young women attending the event to choose the correct science and math courses for admission into the faculty in the future. At the event each team is matched up with a female

engineer mentor. Together they participate in a design-build-test challenge that encourages teamwork, creativity, and ingenuity. In 2020, 60 girls attended the event sponsored by TREK Geotechnical, Manitoba Hydro, FWS Group, KGS Group, Macdon, Price Industries, RTDS Technologies, Hatch, Standard Aero, NSERC Chair for Women in Science and Engineering, Price Faculty of Engineering, Stantec, Boeing, McCain, Dillon, WSP and Emergent Biosolutions.

My favourite part of the event was the design challenge. It was fun and inclusive, making this an overall wonderful experience. I was really glad that we all had mentors both to teach and help us, but also as someone who knows the ropes. On a side note, the food was awesome and having breakfast was a really good idea.

Make Your Move Participant





STEM program offered through:

- Workshops
- Camps
- Clubs
- Events



Living the DREAM Energy

STEM GIRL
Estadotes, los Estados

Living the DREAM

STEM GIRL
Estadotes, los Estados



GO ENG GIRL & GO CODE GIRL

Go Eng Girl and Go Code Girl are free of charge public events for girls in Grades 7-9 that explore engineering and computer science/engineering. These events are framed in an encouraging and interactive way through hands-on activities and challenges. A key component of each event is also about

providing information and resources to the students and their parents about how they can continue in these fields. In November 2019, Go Eng Girl reached 35 participants, and in February 2020, Go Code Girl hosted 87 participants. Thank you to all of the volunteers who help to make these two events extraordinary.

I liked that we were able to create something that others can use, and that it will be donated.

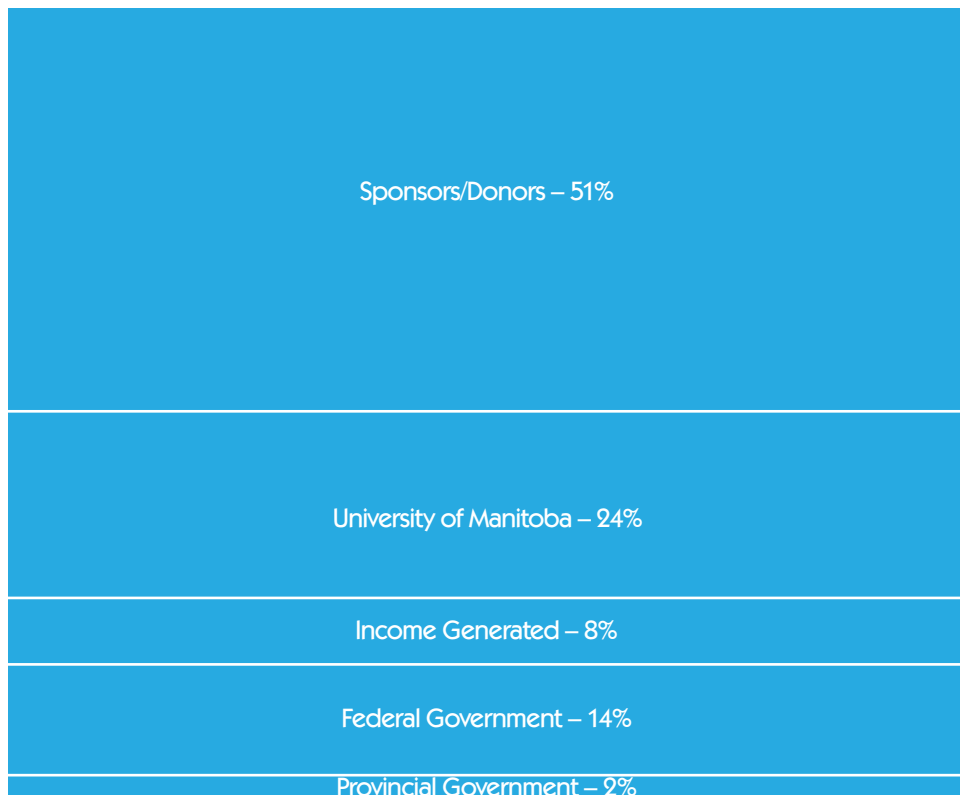
Go Eng Girl Participant

It was really fun with the different challenges that showed us how to code.

Go Code Girl Participant

OUR FINANCES

REVENUE: \$719 000





EXPENSES: \$729 000

Non-Student Wages & Benefits – 35%

Student Wages & Benefits – 27%

Travel – 12%

Materials and Supplies – 26%

What I liked most about the program was that she was being active, interacting with other kids, but also would come home with something she learned.

Parent of a Camper, Norway House Cree Nation, MB



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ESTABLISHED 1998
MAKE YOUR



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OUR SUPPORTERS

2019-2020 FISCAL YEAR FUNDERS

We have many generous supporters that make our work possible.



WISE Kid-Netic Energy is a Proud Network Member of Actua

A network member of actua.ca



Youth · STEM · Innovation

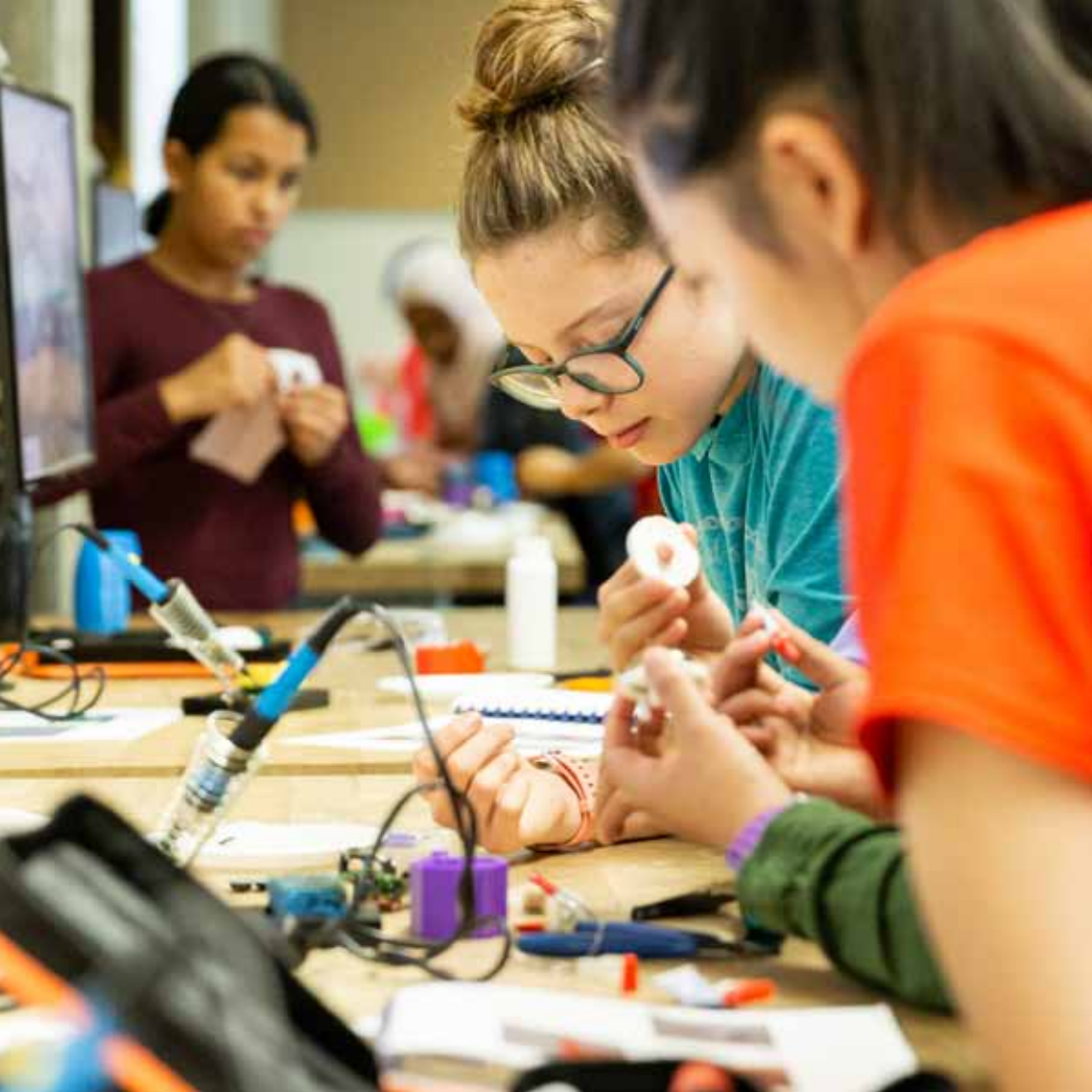
Actua provides training, resources and support to a national network of local organizations offering science and technology education programs. Actua members reach over 250 000 youth per year, in 500 communities nationwide. Please visit Actua on the web at www.actua.ca.

2019 ACTUA NATIONAL FUNDERS



2019 ACTUA MANITOBA FUNDERS









OUR FUTURE

WISE Kid-Netic Energy looks forward to maintaining close ties with the Faculty of Engineering and the Faculty of Science at the University of Manitoba, and aligning ourselves closely with their strategic outreach objectives. We look forward to strengthening our ties with teachers and schools within the province so we can continue to support efforts to attract more youth into careers in Science, Technology, Engineering and Math. Our province has a bright future ahead and we know our talented youth are the conduits to our joint success.





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