



Annual Report

2017-2018



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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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 and camps to youth from Kindergarten to Grade 12 throughout the entire province of Manitoba. Annually we reach between 25 000 and 35 000 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.





[The instructor] was wonderful!
What a great presentation! WISE
has NEVER disappointed. I've had
many workshops and they've all
been fabulous.

J. Sorokowski, Ness Middle School, Winnipeg, MB

OUR INSTRUCTORS

Our instructors are our champions. All of our instructors are University of Manitoba students pursuing engineering or science-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 and deliver outreach close to Winnipeg to

accommodate their classes and labs. In spring and summer they work full-time and travel extensively to all corners of our province including northern Manitoba (Churchill, Thompson, Dauphin, Flin Flon, etc.), southern Manitoba (Steinbach, Morden, etc.) and First Nations communities (Wanipigow, Brokenhead Ojibway Nation, Norway House Cree Nation, Skownan First Nation, Sapoteweyak Cree Nation, etc.). We teach our instructors to consciously consider the grade level they are presenting to so students are able to easily understand, and relate. We also believe having underrepresented peoples as ambassadors of science and engineering in classrooms dispels barriers associated with underrepresented groups excelling in technical fields.





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

We offer over 20 different hands-on workshops and we had another exceptional year in workshop delivery. Between April 1, 2017 to March 31, 2018 we saw an outstanding 32 685 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. Often the Manitoba Department of Education offers grants to teachers that can be used to further subsidize the cost of workshops. 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 32 685 from Kindergarten to Grade 12
- Total CanCode audience of 6,546
- 1 520 workshops delivered Apr. 1, 2017 – Mar. 31, 2018
- 307 free CanCode workshops delivered Nov. 1, 2017 – Mar. 31, 2018



Excellent presentation with appropriate background information and a tactile activity that the students could relate to and engage with.

M. Sutherland, Niji Mahkwa School, Adopt-a-Class School, Winnipeg, MB



WORKSHOP DELIVERY BROKEN DOWN BY SCHOOL DIVISION

April 1, 2017 – March 31, 2018

| DIVISION | KIDS PER DIVISION | DIVISION | KIDS PER DIVISION |
|--------------------|-------------------|-----------------------|-------------------|
| Franco-Manitobaine | 130 | Prairie Rose: | 452 |
| Fort La Bosse | 100 | Red River Valley: | 687 |
| Frontier | 739 | River East-Transcona: | 1 166 |
| Garden Valley | 310 | Seine River: | 469 |
| Hanover | 3 441 | Seven Oaks: | 1 351 |
| Interlake | 137 | Southwest Horizon: | 180 |
| Kelsey | 258 | St. James Assiniboia: | 1 480 |
| Lord Selkirk | 429 | Sunrise: | 1 179 |
| Louis Riel | 1 791 | Western: | 53 |
| Mountain View | 423 | Winnipeg: | 4 559 |
| Mystery Lake | 1 090 | Other/Private: | 9 584 |
| Pembina Trails | 2 143 | | |
| Pine Creek | 195 | | |
| Portage La Prairie | 339 | TOTAL STUDENTS | 32 685 |

Excellent presentation skills and explained things in a way that had students experience “ah-ha” moments, which is a sign of success.

K. Kehler, Grosvenor School, Winnipeg, MB



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

We run week-long science and engineering camps in northern Manitoba (Churchill, Flin Flon, Dauphin, Thompson), southern Manitoba (Steinbach, Morden), First Nations communities (Hollow Water First Nation, Skownan First Nation, Norway House Cree Nation, Brokenhead Ojibway First Nation, Sapotaweyak Cree Nation) and within Winnipeg through the Boys and Girls Club of Winnipeg, and the Immigrant and Refugee Community Organization of Manitoba. Each day, boys and girls

within Grades 4, 5 and 6 experience a new career path. In summer 2017, participants in our STEM camp were exposed to different themes in Genetics, Medical Science, Mining, Space Discovery, and Environment/Sustainability. We also began offering a new 3-day Codemakers camp (all-girls or co-ed), where participants got to explore many facets of coding and digital technology, including activities in robotics, human health, and game creation. Our lesson plans maximize hands-on learning.

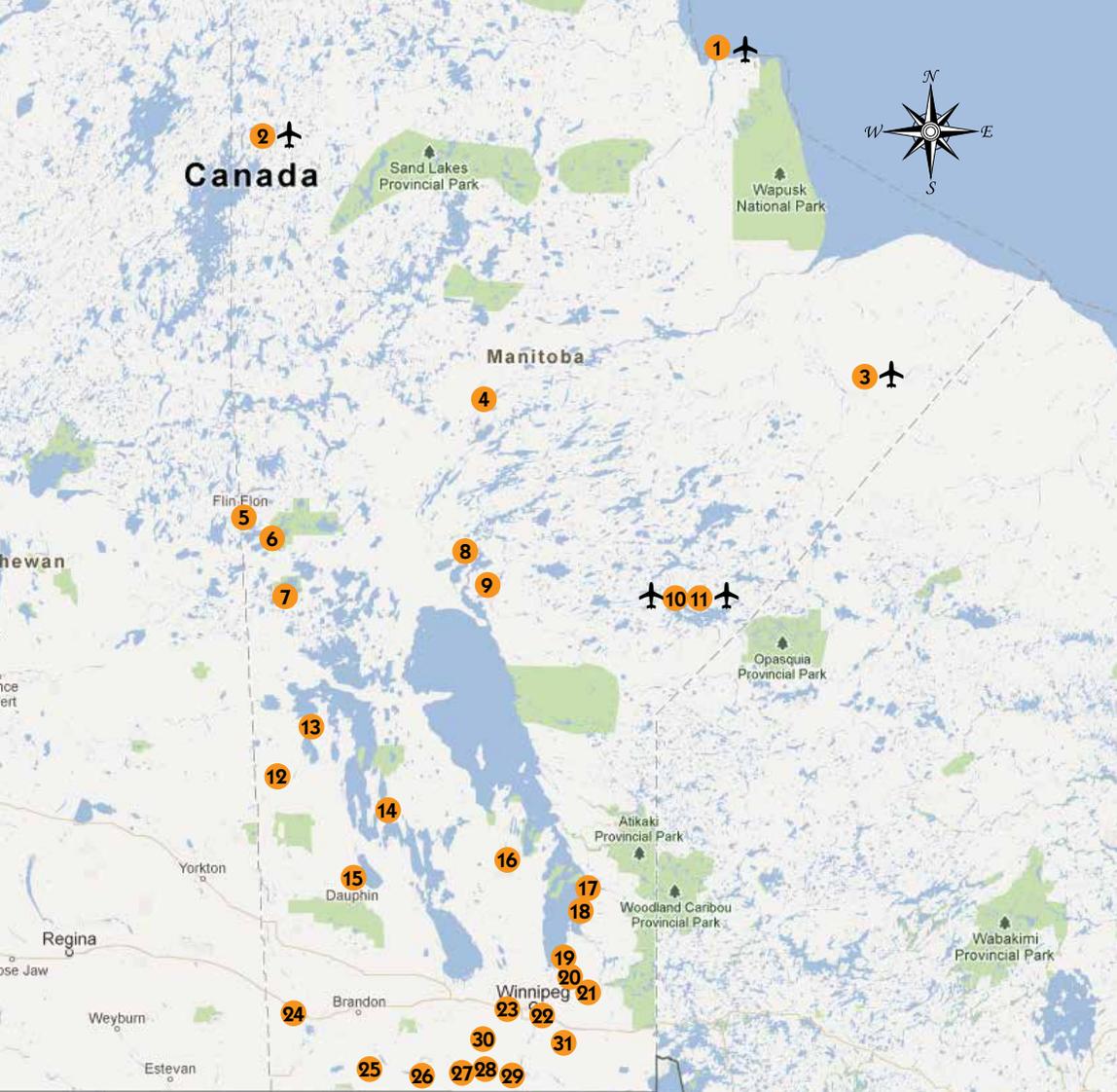
My children came home every day with a new project which they were very proud to share/explain/discuss.

Parent of a camper, Thompson, MB

/code:makers_
actva Google

With funding from
Canada





CAMP LOCATIONS SINCE 2001

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

Highlighted locations received week-long camps in Summer 2017

✈ fly-in location





OUR CLUBS

Each week exciting hands-on activities, tours, field trips and mentor events are hosted. 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 CLUB

Offering quality extra-curricular science and engineering programs is crucial to the development of Manitoba's future scientists and engineers. We have a well-established Girls Club that runs throughout the school year to stimulate, inspire, and support the interests of grade 3-8 girls in science and engineering. The content for this club changes each

year, and is a mixture of youth-selected and instructor-selected themes, to allow members input into their own programming. These girls meet with their instructors each week to explore a new topic and develop their skills through participation in experiments, field trips, and visits with real scientists and engineers.

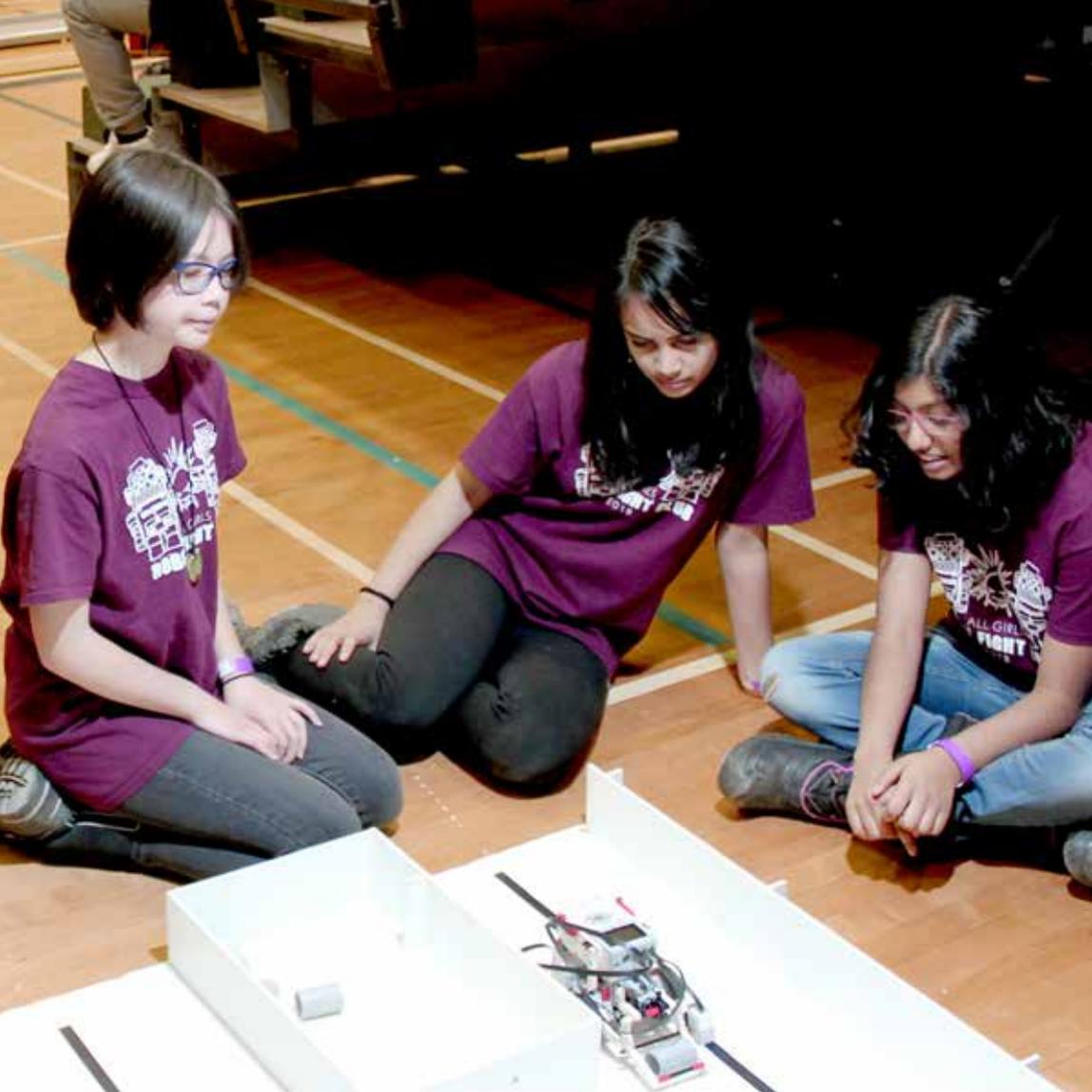
It surpassed our expectations. The leaders made a tremendous impact on my daughter. It wasn't just learning interesting things each week - the team actively mentored and inspired her every step of the way.

Girls Club parent

I enjoyed EVERYTHING!! But to name a few: coding (especially the last session with the robots) making slime, going to the zoo, holding and learning about the bugs, bridge building...there were so many great things!.

Girls Club participant





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 another great year with six participants. Over the course of seven 4-hour sessions, the group trained up for the competition, but also got exposed to other computer engineering experiences, including touring university labs and participating in our first Go Code Girl event. We provided LEGO Mindstorms and computers to train and compete with, along with three female instructors pursuing computer science or engineering degrees. Our teams did great and managed to take 1st, 2nd, and 3rd place in the Manitoba Robot Games!



DISSECTION PROGRAM

In the spring of 2017 WISE Kid-Netic Energy offered inner-city high school students an opportunity to experience first year university-type dissection labs. 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 program started off as four Saturdays at Niji Mahkwa School with 10 Grade 9-12 students dissecting frogs and rats. In the fall of

2017 we moved to Tec-Voc High School where we ran it as an after-school program for eight weeks in the fall, and a second session of six weeks in the winter. In each session, a group of 20 students got to examine a broad taxonomy of animals, including frogs, rats, and dogfish. Students who completed the program received a certificate celebrating their accomplishment. Special thanks to Winnipeg School Division for sharing their space, and teacher Leanne Romaniuk, who volunteered to supervise the program.

This is so intriguing. I'm definitely entering the science field now!

Luis, Program member





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

By far the most meaningful new project we started in September 2012 was our Adopt-a-Class program. We recognized that we could do more to make our workshops accessible in areas of Winnipeg with socio-economic challenges. We asked the Boys and Girls Club of Winnipeg, and ENGAP (Engineering Access Program for Indigenous students) to nominate schools which would receive our workshops at no cost. This year's schools

were Brooklands, David Livingstone, Dufferin, Elmwood, King Edward, Niji Mahkwa, Norquay, Pinkham, Sisler, South East, and William Whyte. Between September 2016, and March 2017 we had already seen 1098 students. We are so grateful to Actua and The Winnipeg Foundation for supporting this initiative. Find out more online. We hope you are as excited as we are.

 wisekidneticenergy.ca/adopt-a-class





INDIGENOUS OUTREACH

In the fiscal year of 2017-2018 we were very engaged on First Nations reserves. We delivered our science and engineering camps in Skownan First Nation, Norway House Cree Nation, Hollow Water First Nation, Brokenhead Ojibway Nation, and Sapoteweyak Cree Nation. In addition, we delivered hands-on science and engineering workshops to Sagkeeng First Nation and Pinaymootang First Nation.

We also partnered with Frontier School Division's middle years career coordinator to visit Pikwitonei and Lynn Lake as part of Middle Years Career Days.. We also visited Leaf Rapids in partnership with Frontier School Division Middle Years Career Days. A number of surrounding communities such as South Indian Lake and Lynn Lake participated in this event.

This presentation was fabulous, really enjoyed seeing the students really loving the presentation. Presenter made connections with students with what their prior knowledge was.

M. Fontaine, Sagkeeng

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 2018, 60 girls attended the event sponsored by Standard Aero, Boeing, New Flyer, MacDon, Magellan, Stantec, Emergent Biosolutions, Hatch, Manitoba Hydro, RTDS, KGS Group, FWS Group, Dillon Consulting, NSERC Chair for Women in Science and Engineering, Engineering Access Program, and Red River College. Special thanks to the University of Manitoba Faculty of Engineering and Price Industries for each sponsoring two teams.

It was really fun! I love the variety of what everyone came up with and all the incredible minds in one space. It's great to see all of the girl power in grade 8.

Make Your Move Student Participant





GO ENG GIRL & GO CODE GIRL

The past two years have seen us add new free of charge public events for girls to gain positive exposure to the fields of computation and technology, at a time when they may be beginning to make plans for their future education and careers. Go Code Girl and Go Eng Girl are explorations in computer science and engineering for girls in grades 7-9, 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

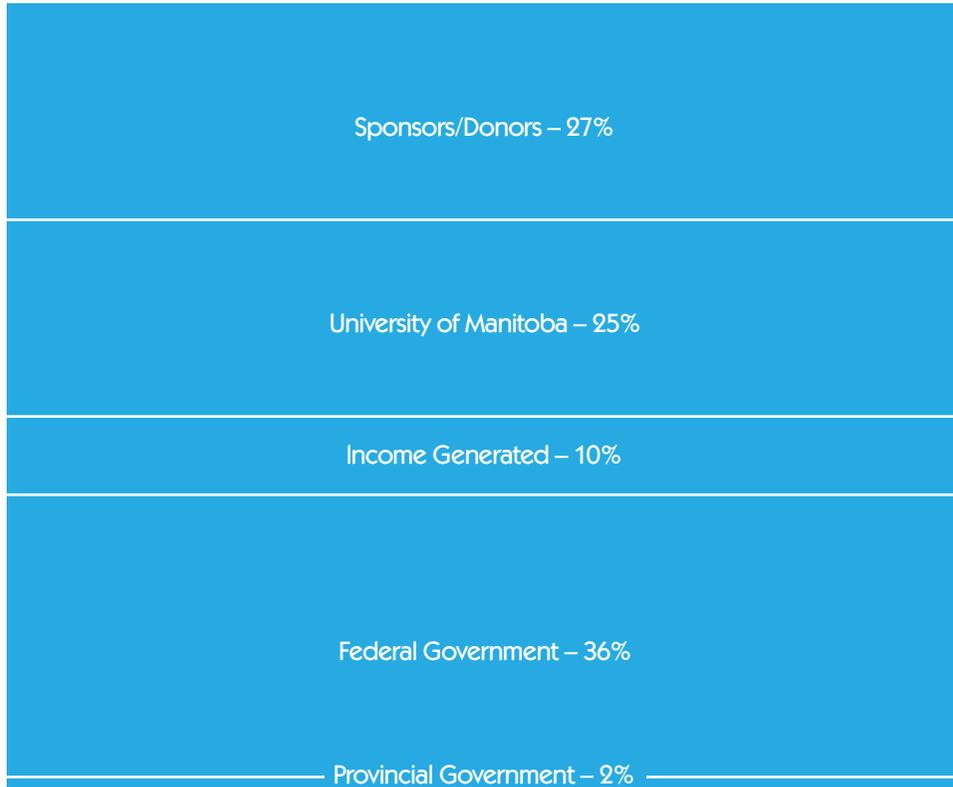
parents about how they can continue in these fields. In November 2017, Go Eng Girl reached 60 participants, who participated in a team engineering design challenge at the University of Manitoba Faculty of Engineering. In February 2018, Go Code Girl reached 95 participants, who got to work through a series of games/puzzles and activities covering programming and computational thinking, with exposure to several sub-disciplines of computer science and computer engineering.

It gives a chance for girls to shine and encourages girls to go into coding engineering.

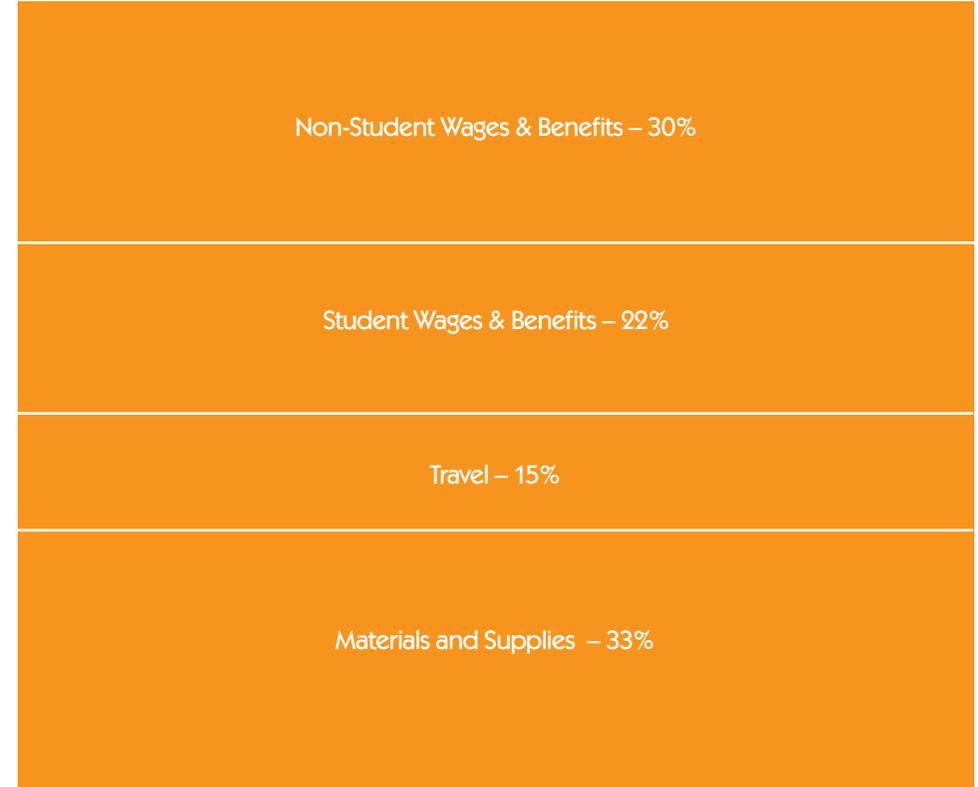
Go Code Girl participant

OUR FINANCES

REVENUE: \$800 000



EXPENSES: \$835 000*



Note: WISE Kid-Netic Energy was privileged to receive federal government CanCode funding through Actua. Funding had to be spent by fiscal year-end, and is yet to be received in full.

WISE delivered an engaging presentation to my grade 8 students. They were completely captivated in the material delivered by our fantastic presenter.

Justin Browm, H.C.Avery Middle School, Winnipeg, MB





OUR SUPPORTERS

2017-2018 FISCAL YEAR FUNDERS

We have many generous supporters that make our work possible.



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MONSANTO



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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.

2017 ACTUA NATIONAL FUNDERS



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imagination at work



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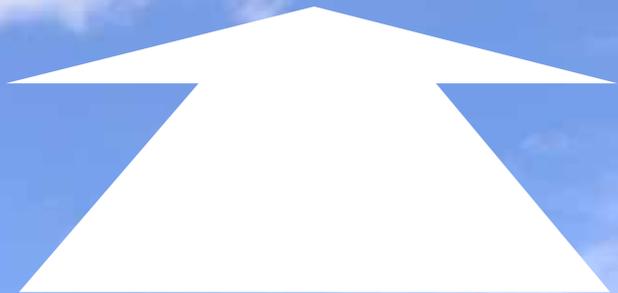


2017 ACTUA MANITOBA FUNDERS



RICHARDSON FOUNDATION





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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