



Annual Report

2018–2019



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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Youth · STEM · Innovation

INTRODUCTION	2
OUR INSTRUCTORS	6
OUR WORKSHOPS	10
OUR CAMPS	16
OUR CLUBS	
Girls Club	22
Robot Fight Club	25
Dissection Program	26
OUR OUTREACH	
Adopt-a-Class	30
Indigenous Outreach	33
Make Your Move	34
Go Code Girl / Go Eng Girl	37
OUR FINANCES	38
OUR SUPPORTERS	43
OUR FUTURE	47

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 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.







Nice to see university students
promoting future careers!

Mrs. Myers, Gilbert Plains Elementary, Gilbert Plains, 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 Churchill, Thompson, Flin Flon, Cranberry Portage and Dauphin in northern Manitoba, dozens of rural communities throughout southern Manitoba, and First Nations communities like Wanipigow, Skownan First Nation, Norway House Cree Nation, Sapotaweyak Cree Nation, and Sagkeeng First Nation.




WISE Kid-Netic Energy
ENGINEERING FOR SCIENCE

Jenica
WISE Kid-Netic Energy
ENGINEERING FOR SCIENCE


WISE Kid-Netic Energy
ENGINEERING FOR SCIENCE



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

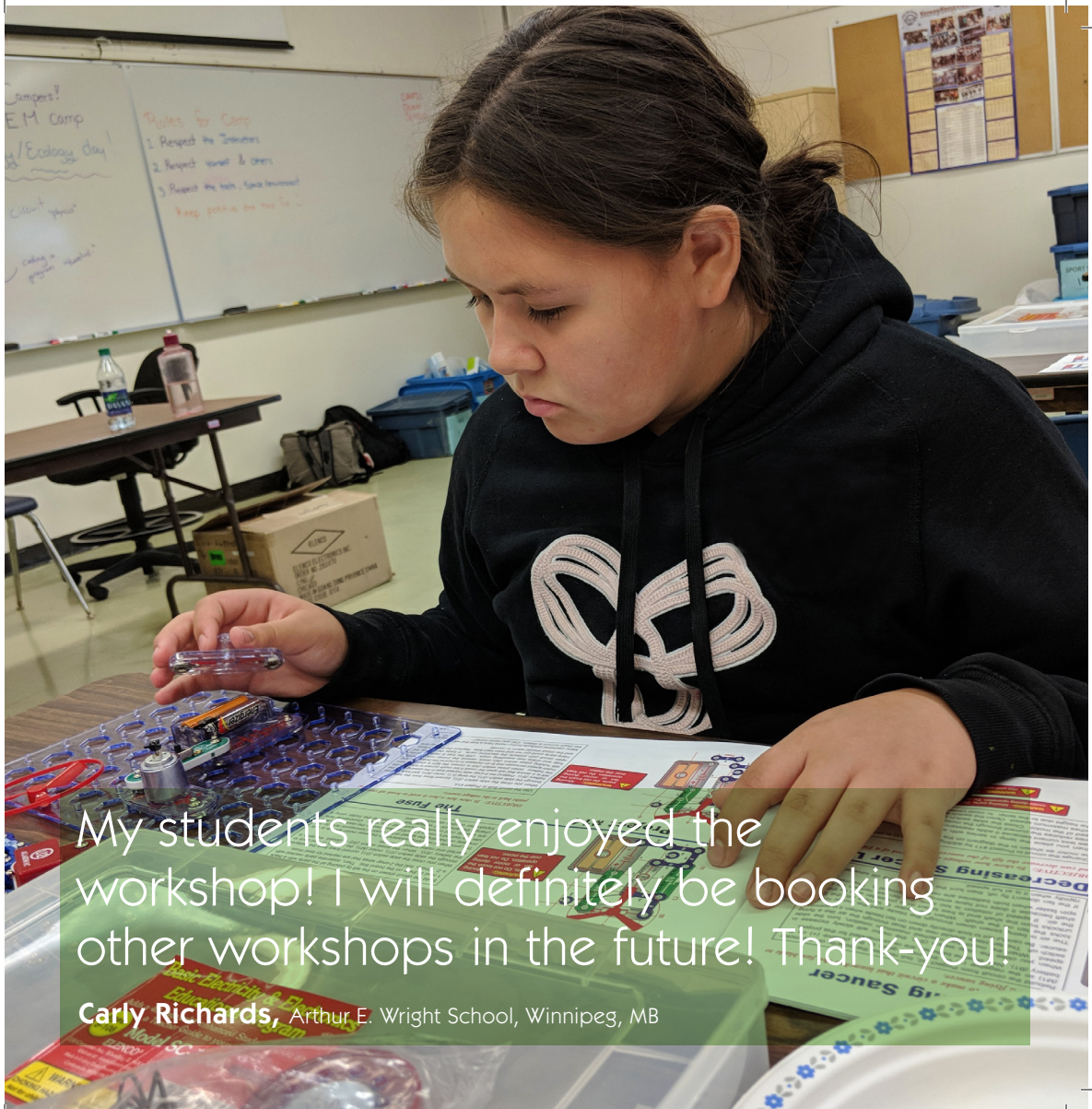
OUR WORKSHOPS

We offer over 20 different hands-on workshops and we had another exceptional year in workshop delivery. Between April 1, 2018 to March 31, 2019 we saw an outstanding 47 371 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 47 371 from Kindergarten to Grade 12
- Total CanCode audience of 22 014
- 2 217 workshops delivered April 1, 2018 – March 31, 2019
- 995 free CanCode workshops delivered April 1, 2018 – March 31, 2019



My students really enjoyed the workshop! I will definitely be booking other workshops in the future! Thank-you!

Carly Richards, Arthur E. Wright School, Winnipeg, MB



WORKSHOP DELIVERY BROKEN DOWN BY SCHOOL DIVISION

April 1, 2018 – March 31, 2019

DIVISION	KIDS PER DIVISION	DIVISION	KIDS PER DIVISION
Borderland	204	Portage la Prairie	1198
Franco-Manitobaine	254	Prairie Rose	1071
Evergreen	162	Prairie Spirit	231
Flin Flon	274	Red River Valley	845
Frontier	2445	River East Transcona	3824
Garden Valley	656	Seine River	1268
Hanover	3782	Seven Oaks	2721
Interlake	526	St. James Assiniboia	1874
Kelsey	276	Sunrise	1501
Lord Selkirk	632	Western	278
Louis Riel	4710	Winnipeg	6256
Mountain View	679	Other/Private	6647
Mystery Lake	817		
Pembina Trails	2804		
Pine Creek	225		
		TOTAL STUDENTS	47 281

Great variety and love the
implementation of Aboriginal
perspectives in science.

Chantel Harel, Ecole St. Germain, Winnipeg, MB



A photograph showing a workshop or classroom setting. In the foreground, the back of a person wearing a white hoodie with orange circular patterns is visible. To their right is a wooden table with several boxes of materials, including one labeled 'SUNSHINE WAX'. A laptop with orange and yellow patterns is open on the table, with several white cables plugged into its side. The background shows a grey wall and another person partially visible.

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 2018 we ran week-long science and engineering camps in northern Manitoba (Churchill, Cranberry-Portage, Thompson, Flin Flon and Dauphin), southern Manitoba (Altona, Morden and Steinbach), First Nations communities (Hollow Water First Nation, Skownan First Nation, Sapotaweyak Cree Nation, Norway House Cree Nation, Opaskwayak Cree Nation and Sagkeeng First Nation), and within Winnipeg through Winnipeg School Division and Immigrant and Refugee Community of Manitoba (IRCOM).

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.

We were able to offer two types of camps. For youth in Grades 7-9 we offered our Codemakers camp free of charge. Participants got to explore different types of robots, learn how to code, and used a 3-D printer among many other hands-on activities. For youth in Grades 4-6 we offered our traditional science and engineering camp. The themes included Extreme Engineering, Food Science, Paleontology, Sport Science and Zoology & Ecology.

My favourite project was the code kits because I got to use my imagination to its fullest.

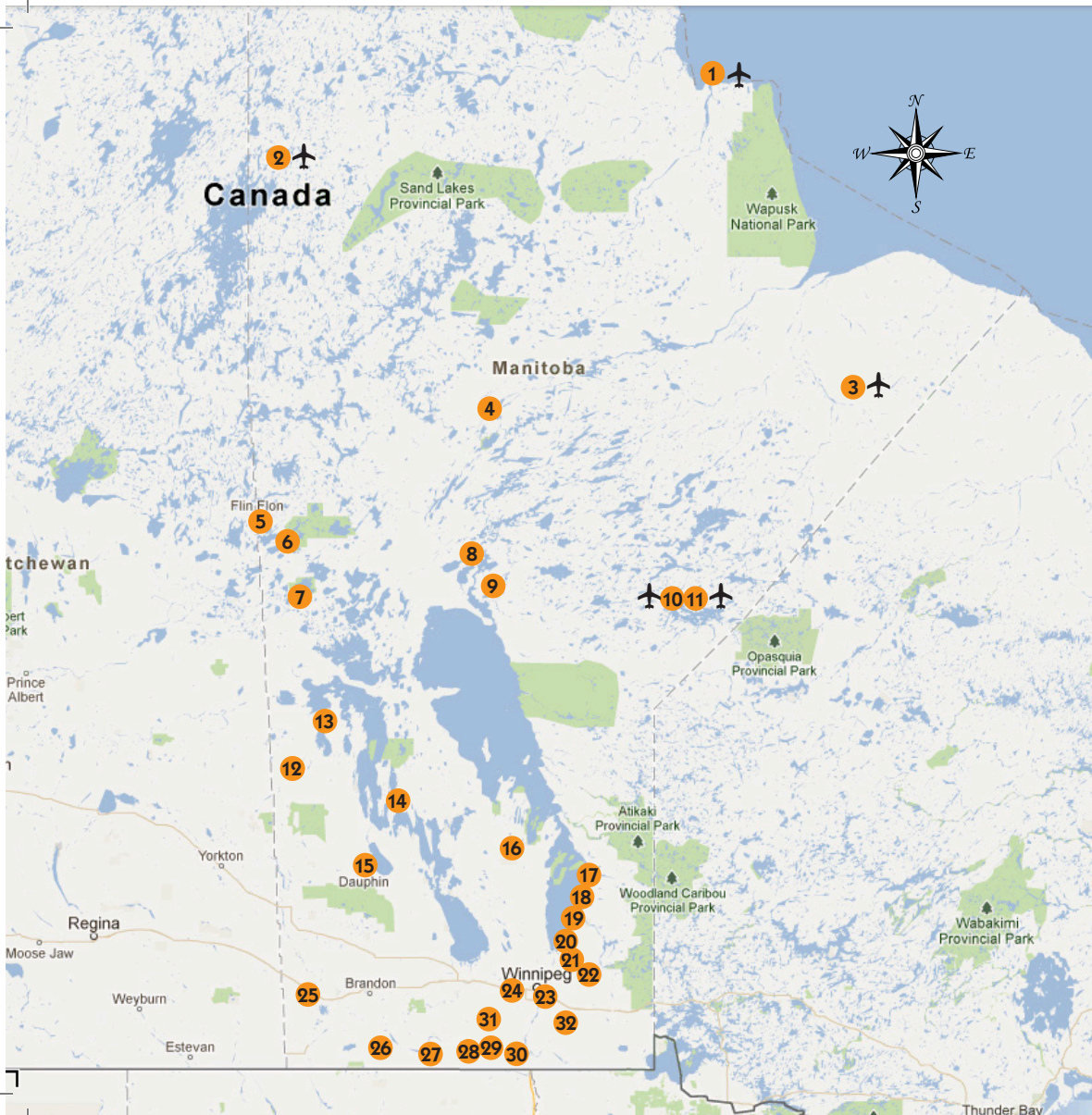
Camper, Wanipigow, Hollow Water First Nation, MB



With funding from







CAMP LOCATIONS SINCE 2001

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
11. GARDEN HILL
FIRST NATION
12. SWAN RIVER
13. SAPOTAWAYAK
CREE NATION
14. SKOWNAN
FIRST NATION
15. DAUPHIN
16. PEGUIS FIRST NATION
17. WANIPIGOW
18. LITTLE BLACK RIVER
FIRST NATION
19. SAGKEENG FIRST NATION
20. BROKENHEAD OJIBWAY
FIRST NATION
21. TYNDALL
22. BEAUSEJOUR
23. WINNIPEG
24. ST. FRANCOIS-XAVIER
25. VIRDEN
26. KILLARNEY
27. CLEARWATER
28. MORDEN
29. WINKLER
30. ALTONA
31. CARMAN
32. STEINBACH

Highlighted locations received week-long camps in Summer 2018

✈ fly-in location







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 CLUB

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. The Girls Club program saw a few changes in 2018-2019, with a

new format for our on-campus Girls Club that enabled the club to accommodate more students, and a reintroduction of our Inner-City Girls Club thanks to a new partnership with Pinkham School. Our on-campus program meets on Saturdays at the University of Manitoba, while our inner-city program meets after school. 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.

Our kiddo loved everything about this program. We were so impressed. The activities were so well done and there was so much variety... Our daughter tells everyone now that she wants to be an engineer when she grows up. We are so thankful she had this opportunity.

Parent of a Girls Club Member

How high will the balloon bounce with tape on it?

Science experiment
Cali Loehance
Goal: 8 Feet.

METHOD

1. Inflate a balloon.
2. Put the 8 Foot measure on the wall.
3. Put tape on the balloon and see how high it goes.

RESULTS AND OBSERVATION

When I added a strip of tape to the balloon it bounced higher and measured how high it bounced.



HYPOTHESIS

I predict the balloon will need ten strips of tape to reach eight feet because putting more tape can make it bounce higher.

MATERIALS

You will need:

- A balloon
- clear tape
- measuring stick
- paper and pencil to record data
- clipboard

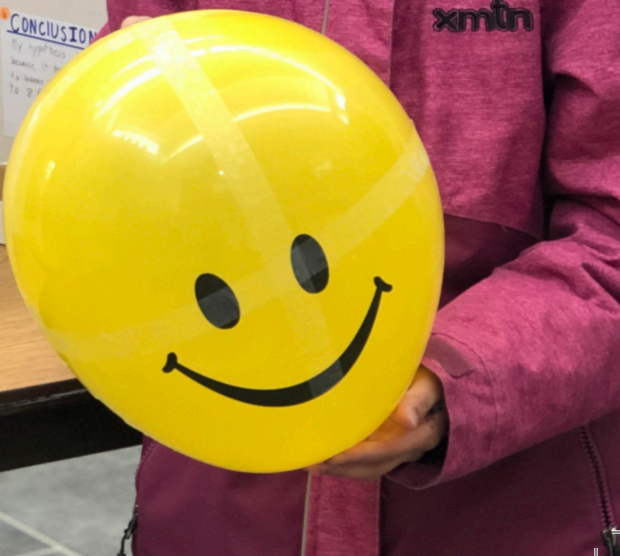


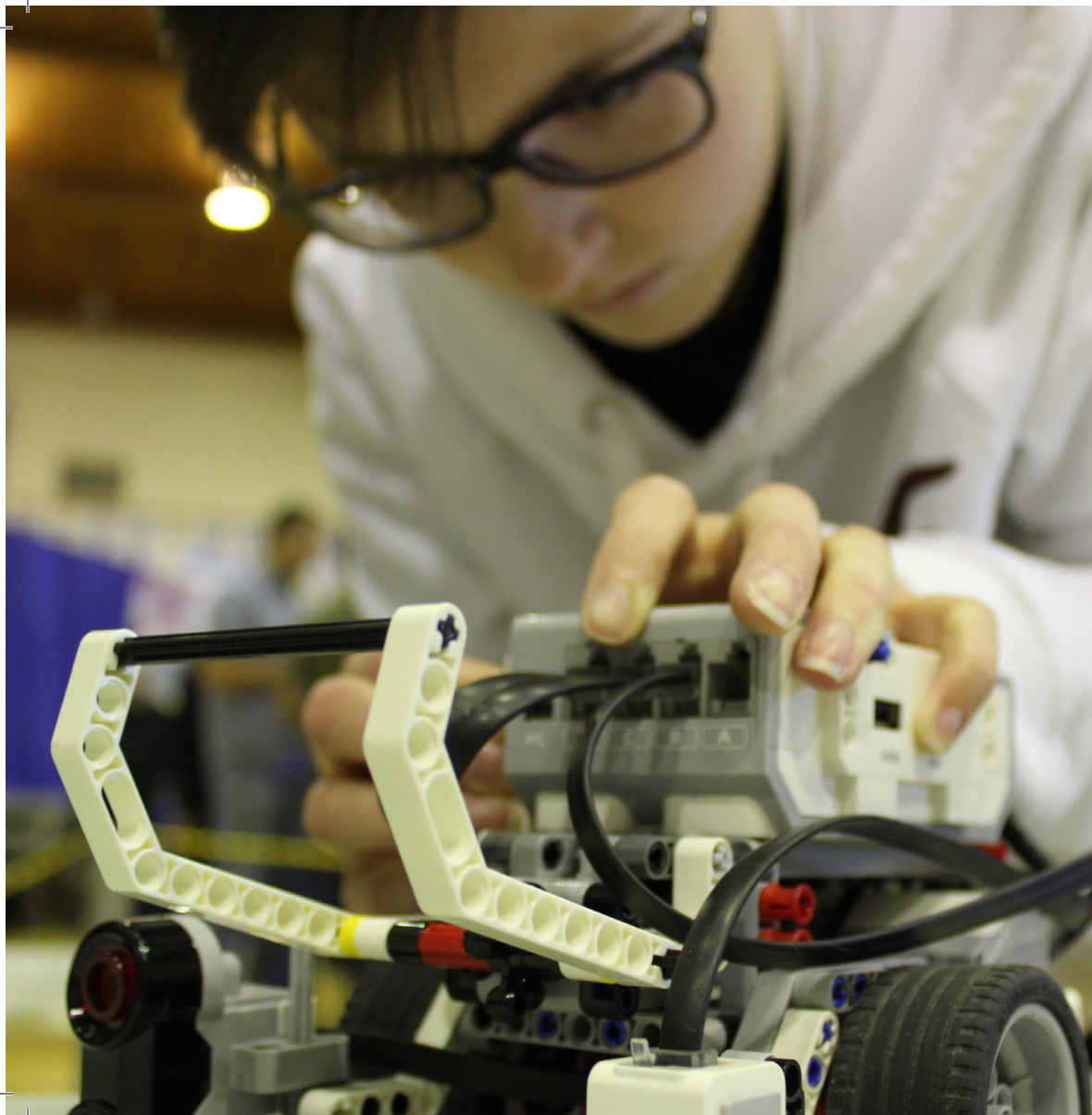
DISCUSSION

1. It went low because I did not bounce it with lots of energy.
2. I did not bounce the balloon on the same position.
3. I used bounce sheets on the floor to keep it from sticking to the wall and floor.

CONCLUSION

The hypothesis was correct because it took 10 strips of tape to get to 8 feet.





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 seven 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. 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

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. In our third year we offered two six week sessions at Tec-Voc High School. In the fall we had a record 33 participants, and in the winter we had

19. The students had a chance to dissect a sea cucumber, frog, rat and dogfish. Students who diligently 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.

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







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



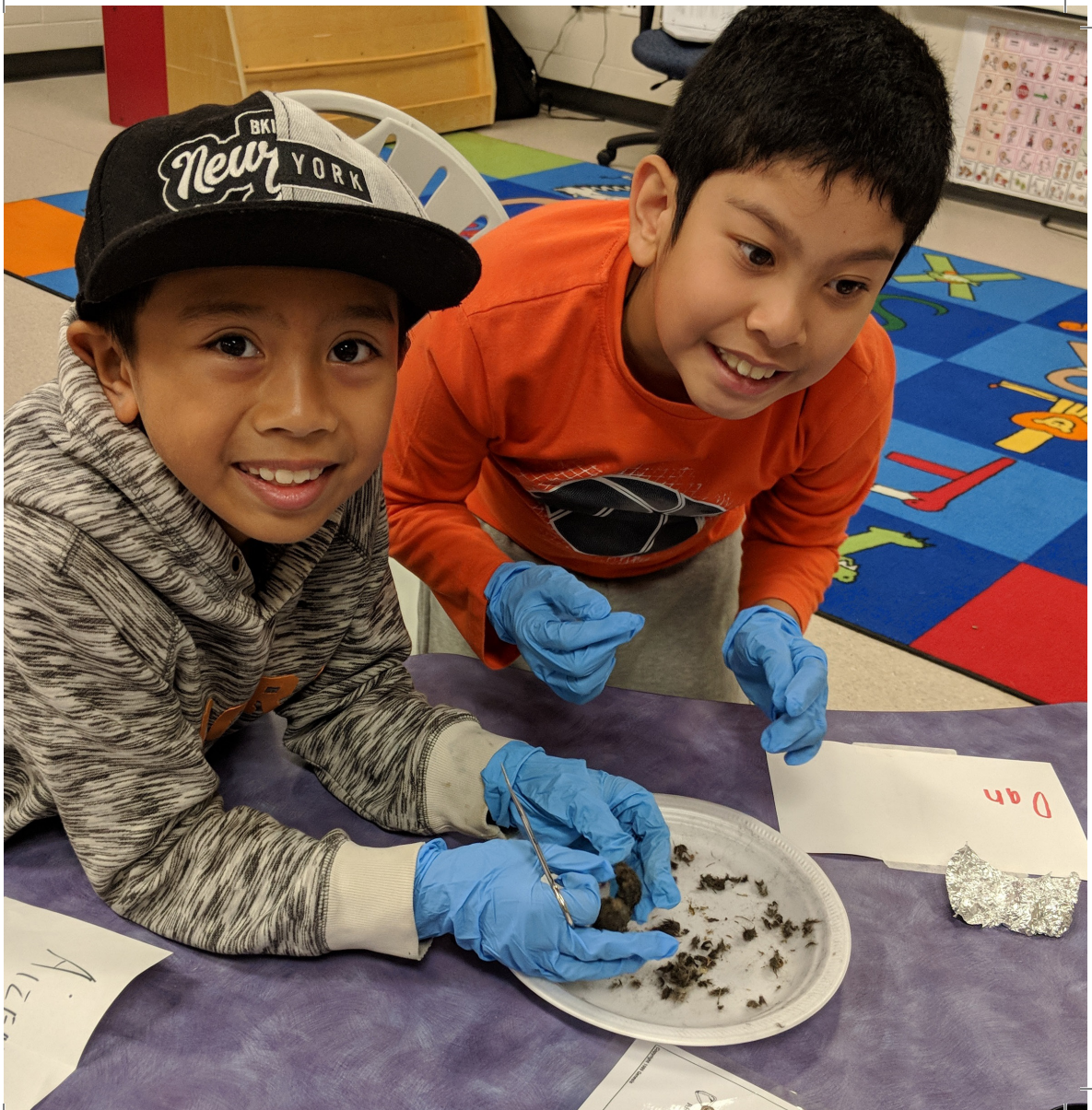
ADOPT-A-CLASS

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, Sisler, Southeast Collegiate and William Whyte. Between September 2018 and March 2019 we have already delivered 75 workshops, and visited 1481 youth. We are so grateful to Actua, The Winnipeg Foundation, and private donors for supporting this initiative. Learn how you can contribute by visiting our website.

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

M. Sutherland, Niji Mahkwa School, Winnipeg, MB





OUR OUTREACH

INDIGENOUS OUTREACH



In the spring of 2018 we delivered workshops in Skownan First Nation, Norway House Cree Nation, Hollow Water First Nation, and Sagkeeng First Nation. In Pinaymootang First Nation, Skownan First Nation, Hollow Water First Nation and Sagkeeng First Nation we also delivered our camp programming. Camp included our regular STEM camp for Grades 4-6, as well as our Codemakers Camp for Grades 7-9. Unfortunately due to forest fires, we had to move our Sapotawayak Cree Nation camp from the spring to the summer.

As always we partnered with Frontier School Division to bring Career X to Cranberry-Portage

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

The students were very engaged and had a lot of fun!

Mrs. Lacquette, Gr. 1/2 teacher at Skownan First Nation, Skownan First Nation

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 2019, 60 girls attended the event sponsored by TREK Geotechnical, Manitoba Hydro, FWS, KGS, Macdon, Price Industries, RTDS, Hatch, New Flyer, Standard Aero, Magellan, NSERC Chair for Women in Science and Engineering, Faculty of Engineering, Stantec, and Emergent Biosolutions.

I learned a lot more about what engineers actually do and the different types of engineering there is. I learned about how much engineering really helps the planet and the people living on it.

Make Your Move Participant





OUR OUTREACH



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 2018, Go Eng Girl reached 60 participants, and in February 2019, Go Code Girl hosted 64 participants. Thank you to all of the volunteers who help to make these two events extraordinary.

I really enjoyed the really nice ladies at our table. They are really good sports and good role models. This was very fun so I hope we continue this program to inspire girls.

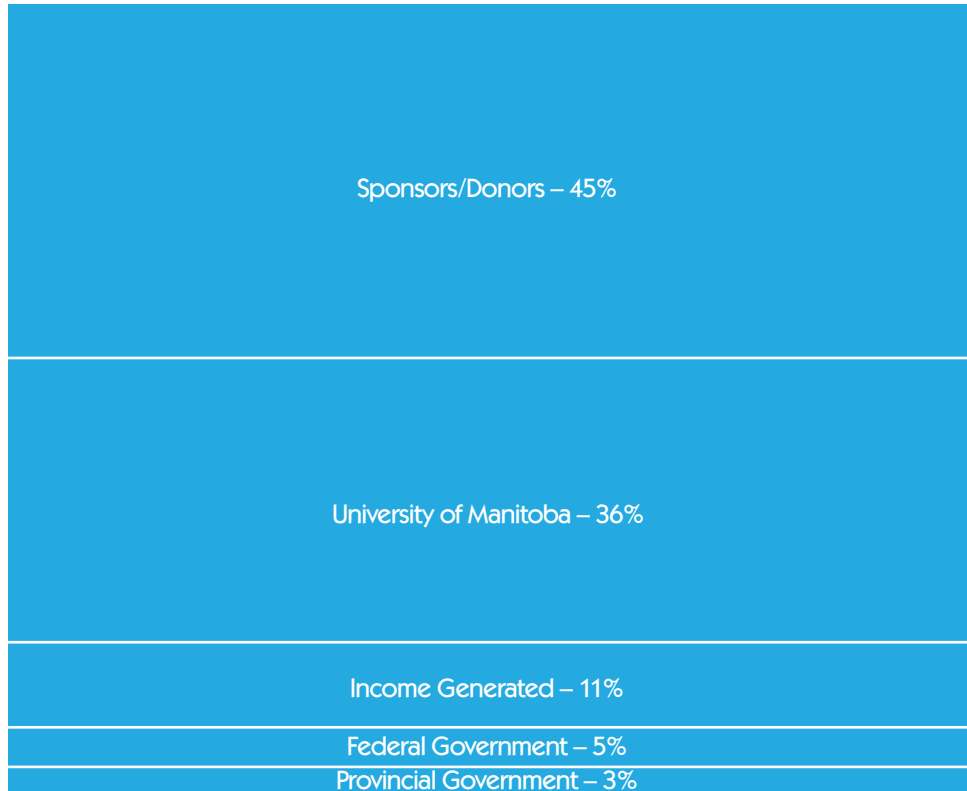
Go Eng Girl Participant

I really enjoyed the maze and decoding. Everything was fun! I had a lot of fun with friends, and meeting NEW ONES!

Go Code Girl Participant

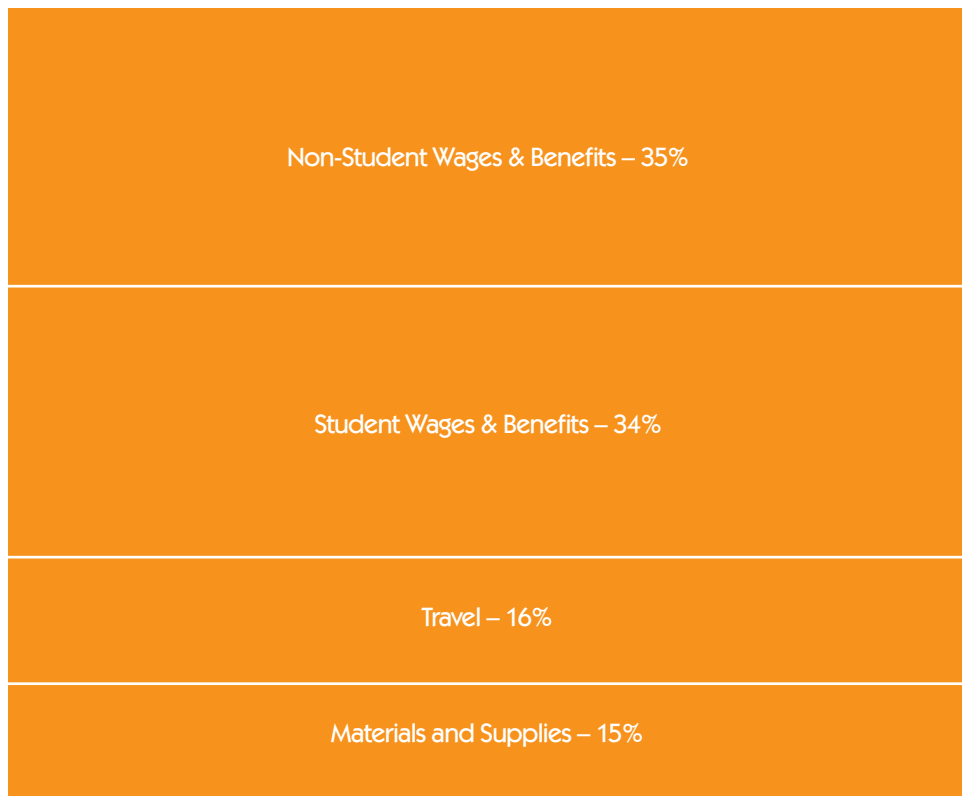
OUR FINANCES

REVENUE: \$640 000





EXPENSES: \$657 000*



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.

I loved that we got to work together and try to design a project. Everyone was welcoming and kind. I really felt included.

Make Your Move Participant





OUR SUPPORTERS

2018-2019 FISCAL YEAR FUNDERS

We have many generous supporters that make our work possible.



UNIVERSITY OF MANITOBA | Faculty of Engineering



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CRSNG**

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Manitoba 



faculty of SCIENCE
discover the unknown • invent the future



University of Manitoba

MONSANTO



THE WINNIPEG FOUNDATION 

 **ENGINEERS
GEOSCIENTISTS
MANITOBA**

Calm Air 



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

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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.

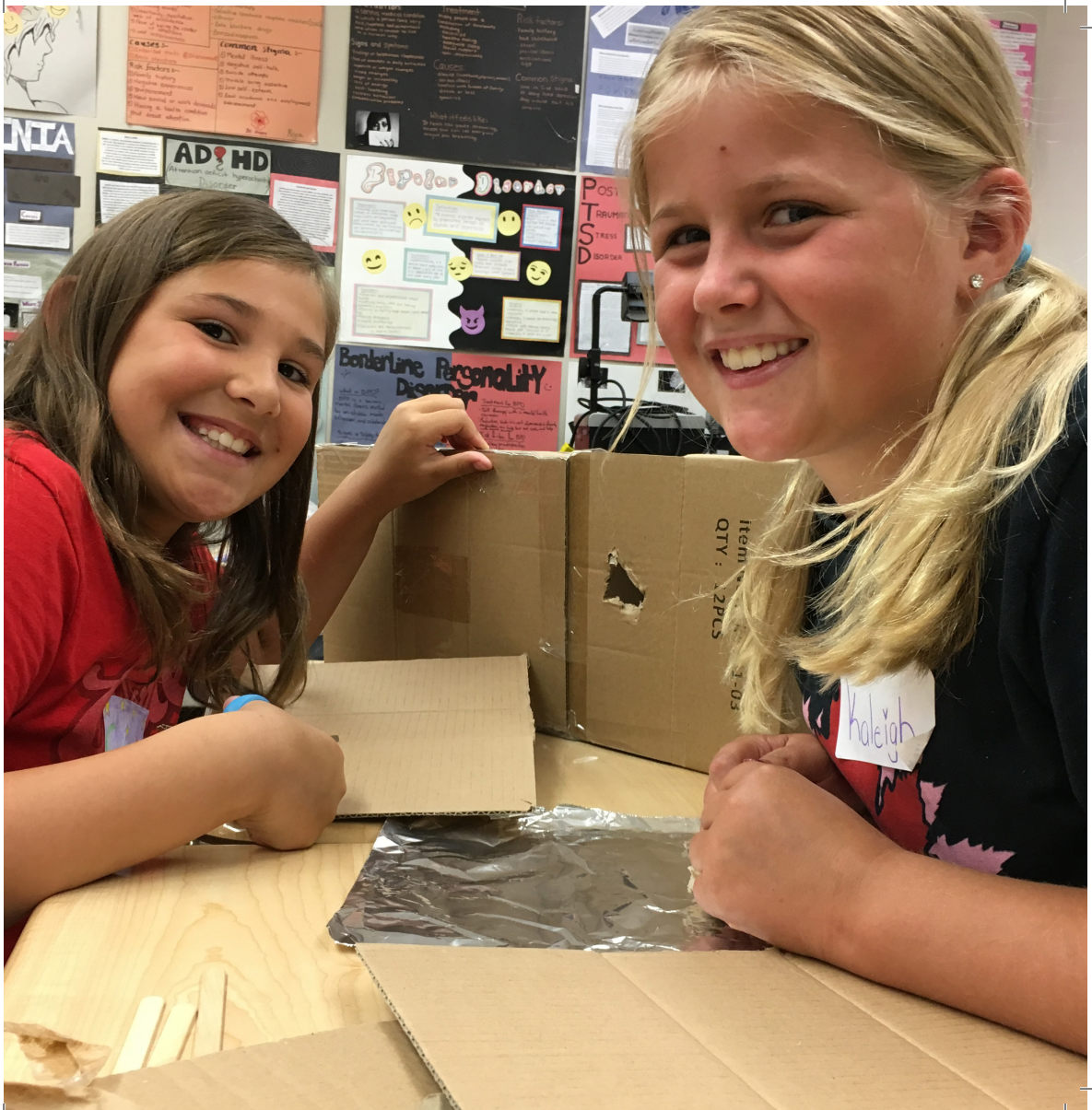
2018 ACTUA NATIONAL FUNDERS



2018 ACTUA MANITOBA FUNDERS



RICHARDSON
FOUNDATION



ADHD
Attention Deficit Hyperactivity Disorder

Bipolar Disorder

- Manic episodes
- Depressive episodes
- Mixed episodes
- Psychotic symptoms

Borderline Personality Disorder

- Emotional instability
- Self-harm
- Impulsive behavior

POST
FORUM
STRESS
DISORDER

Kaleigh

Item
QTY: 2PCS
1-03



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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