



WISE Kid-Netic Energy
ENGINEERING FOR SCIENCE



Annual Report

2015–2016



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

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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.





Our presenter was eager, well prepared, and great with kids! I've always been impressed with the WISE presentations.

A. Fernie,

Edmund Partridge Community 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, Dauphin, Flin Flon, etc.), southern Manitoba (Steinbach, Killarney, Morden, etc.) and First Nations communities (Wanipigow, Skownan First Nation, Norway House 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

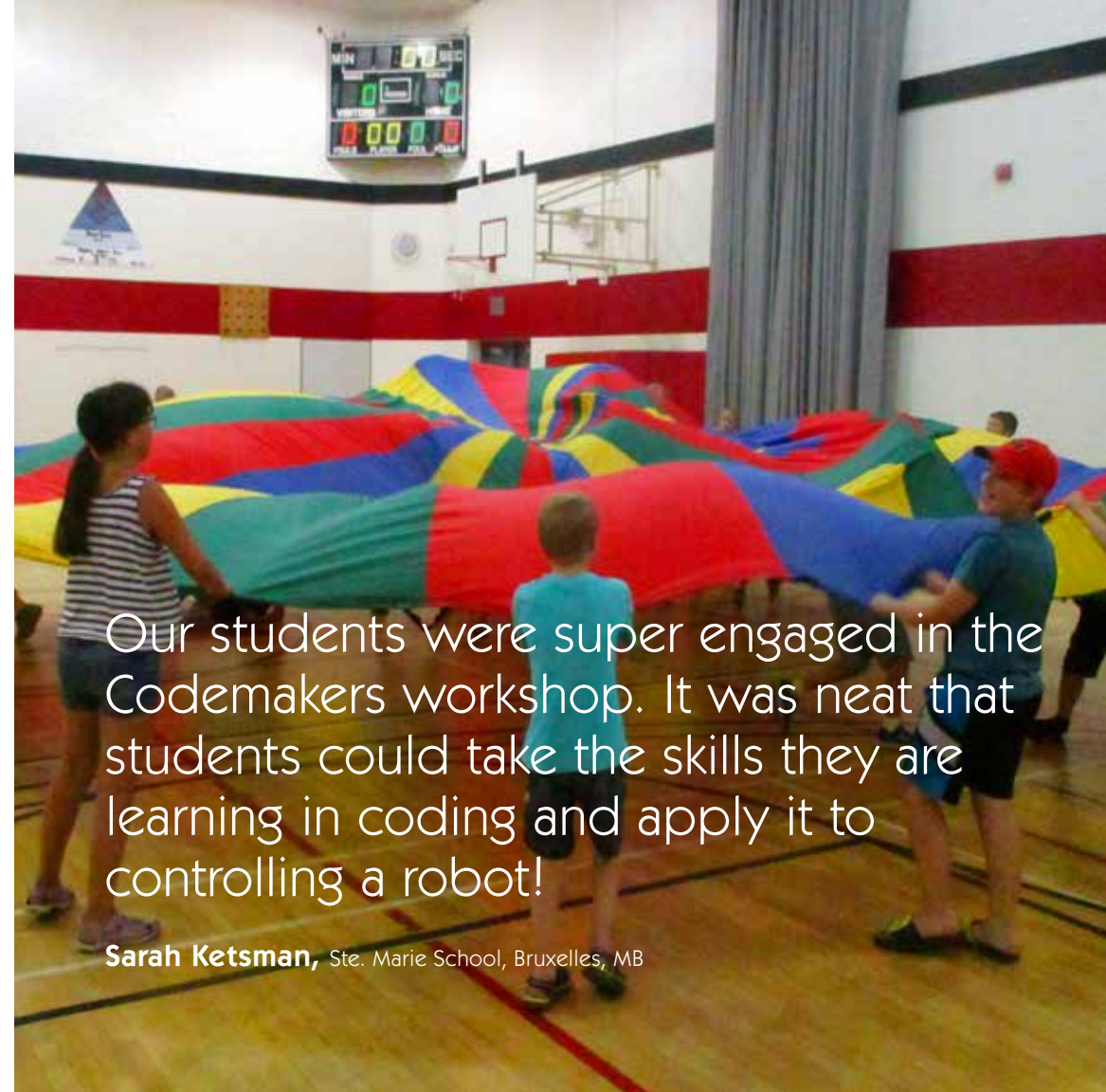
OUR WORKSHOPS

We offer over 20 different hands-on workshops and we had another tremendous year in workshop delivery. Between April 1, 2015 and March 31, 2016 we saw an outstanding 30 167 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. 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. 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 30 167 from Kindergarten to Grade 12
- 1 377 workshops delivered



Our students were super engaged in the Codemakers workshop. It was neat that students could take the skills they are learning in coding and apply it to controlling a robot!

Sarah Ketsman, Ste. Marie School, Bruxelles, MB



WORKSHOP DELIVERY BROKEN DOWN BY SCHOOL DIVISION

DIVISION	KIDS PER DIVISION	DIVISION	KIDS PER DIVISION
Franco-Manitobaine	220	Prairie Rose	68
Flin Flon	630	Prairie Spirit	205
Frontier	2 288	Red River Valley	444
Garden Valley	190	River East Transcona	988
Hanover	1 799	Rolling River	253
Interlake	41	Seine River	108
Kelsey	408	Seven Oaks	522
Lord Selkirk	337	St. James Assiniboia	1 634
Louis Riel	1 017	Sunrise	67
Mountain View	644	Turtle Mountain	190
Mystery Lake	1 628	Winnipeg	5 115
Pembina Trails	1 983	Other/Private	5 506
Portage la Prairie	716		
		TOTAL STUDENTS	30 167

Good presentation. The students really enjoyed the hands on activity, they thought they were playing a game but they were really learning.

Grade 1 Teacher, Peguis Central School, Peguis First Nation, 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.

wisekidneticenergy.ca/camps

OUR CAMPS

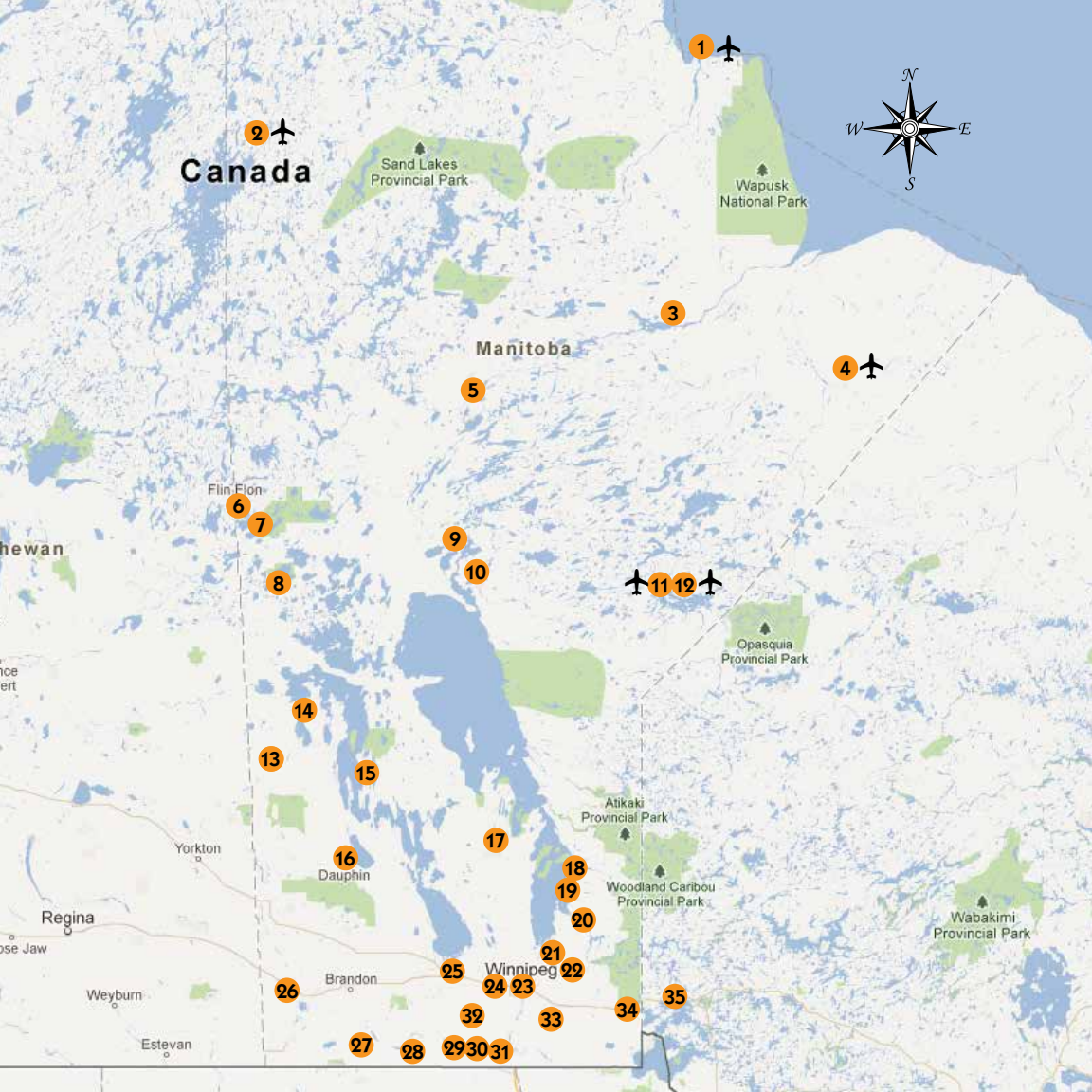
We run week-long science and engineering camps in northern Manitoba (Churchill, Flin Flon, The Pas, Dauphin), southern Manitoba (Steinbach, Morden, Killarney), First Nations communities (Wanipigow, Skownan, Norway House, Sapotaweyak), and within Winnipeg through the Boys and Girls Club of Winnipeg, Immigrant and Refugee Community Organization of Manitoba,

and Spence Neighbourhood Association. Each day, boys and girls within Grades 4, 5 and 6 experience a new career path. In summer 2015 participants were exposed to different themes in Agriculture, Chemistry, Engineering, Computer Science/Engineering, and Water Resources. Our lesson plans maximize hands-on learning.

My son more than enjoyed himself, and wishes you guys could come out more often!

Parent of a camper, Wanipigow, MB






CAMP LOCATIONS SINCE 2001

- | | |
|--|-------------------------------------|
| 1. CHURCHILL | 16. DAUPHIN |
| 2. BROCHET | 17. PEGUIS FIRST NATION |
| 3. GILLAM | 18. WANIPIGOW |
| 4. SHAMATTAWA | 19. LITTLE BLACK RIVER FIRST NATION |
| 5. THOMPSON | 20. PINAWA |
| 6. FLIN FLON | 21. TYNDALL |
| 7. FRONTIER SCHOOL DIVISION'S CAREER X | 22. BEAUSEJOUR |
| 8. THE PAS & OPASKWAYAK CREE NATION | 23. WINNIPEG |
| 9. CROSS LAKE FIRST NATION | 24. ST. FRANCOIS-XAVIER |
| 10. NORWAY HOUSE CREE NATION | 25. PORTAGE LA PRAIRIE |
| 11. WASAGAMACK | 26. VIRDEN |
| 12. GARDEN HILL FIRST NATION | 27. KILLARNEY |
| 13. SWAN RIVER | 28. CLEARWATER |
| 14. SAPOTAWAYAK CREE NATION | 29. MORDEN |
| 15. SKOWNAN FIRST NATION | 30. WINKLER |
| | 31. ALTONA |
| | 30. CARMAN |
| | 33. STEINBACH |
| | 34. FALCON LAKE |
| | 35. KENORA |

Highlighted locations received week-long camps in Summer 2015

 fly-in location



SPACE ADVENTURE CAMP

WISE Kid-Netic Energy continues to provide the promotional and administrative support for the Manitoba Space Adventure Camp, a Manitoba Aerospace initiative. The enrichment camp designed for students in Grades 9-11 explores various aerospace, flight, physics and space topics. Students participate in hands-on activities such as rocket builds, extensive lab tours in the Faculty of Engineering and drive a race car—a simulator of course!





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, and we offer two girls clubs that run throughout the school year to support local interest. Every week the girls meet with their instructors, and develop their skills and interests through participation in competitions, field trips and mentorships.



[My daughter] has been LOVING the sessions. Kudos to you guys for organizing this for the girls. She's very excited about the dissecting this weekend. Keep up the great job!

J. Gilbert, parent of a Girls Club Member





ROBOT FIGHT CLUB

We would like to see more girls compete in the Manitoba Robot Games programming challenge with LEGO Mindstorms. In the winter of 2015, we started a club called “All Girls Robot Fight Club”. The club met for 6 sessions, 3 hours each and trained for the challenge. We provided the LEGO Mindstorms and the computers to train and compete with. We also provided them with female instructors pursuing computer science degrees and/or engineering degrees. It was a great pilot year and we hope to offer it again. One of our teams even placed third at the Manitoba Robot Games.





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, Kind Edward, Niji Mahkwa, Norquay, Pinkham, St. John's High, Shaughnessy Park, Sisler, South East, and William Whyte. Between September 2015, and March 2016 we had already seen 1375 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 2015-2016 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, Opaskwayak Cree Nation and Sapotaweyak Cree Nation. In addition, we delivered hands-on science and engineering workshops to Brokenhead Ojibway Nation, Sagkeeng First Nation, Peguis First Nation, Opaskwayak Cree Nation, as well as a group from Sioux

Lookout that visited the Fort Garry campus. We are also pleased to share that along with Pembina Trails School Division, we have implemented a new program called the Circle of Science. This program is held at lunch hour on a monthly basis in Vincent Massey Collegiate, Arthur A. Leach School, Fort Richmond Collegiate, and General Byng School. Students participate in indigenized hands-on science and engineering activities.

One student told me she is now interested in taking the university courses in science that the presenter took. Fabulous!

Cynthia Gardewine, Sergeant Tommy Prince School, Brokenhead First Nation, MB

INNER-CITY GIRLS CLUB

In the fall of 2012 we started our second Girls Club in partnership with the Boys and Girls Club of Winnipeg at their Gilbert Park location. During the school year, on Saturday afternoons, 15 girls met to prepare and share healthy meals with female students pursuing science and

engineering undergraduate degrees, and mentors already practising as professionals in those fields. The girls also played sports and participated in science and engineering activities each and every week. It was a safe and fun environment for all participants.





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

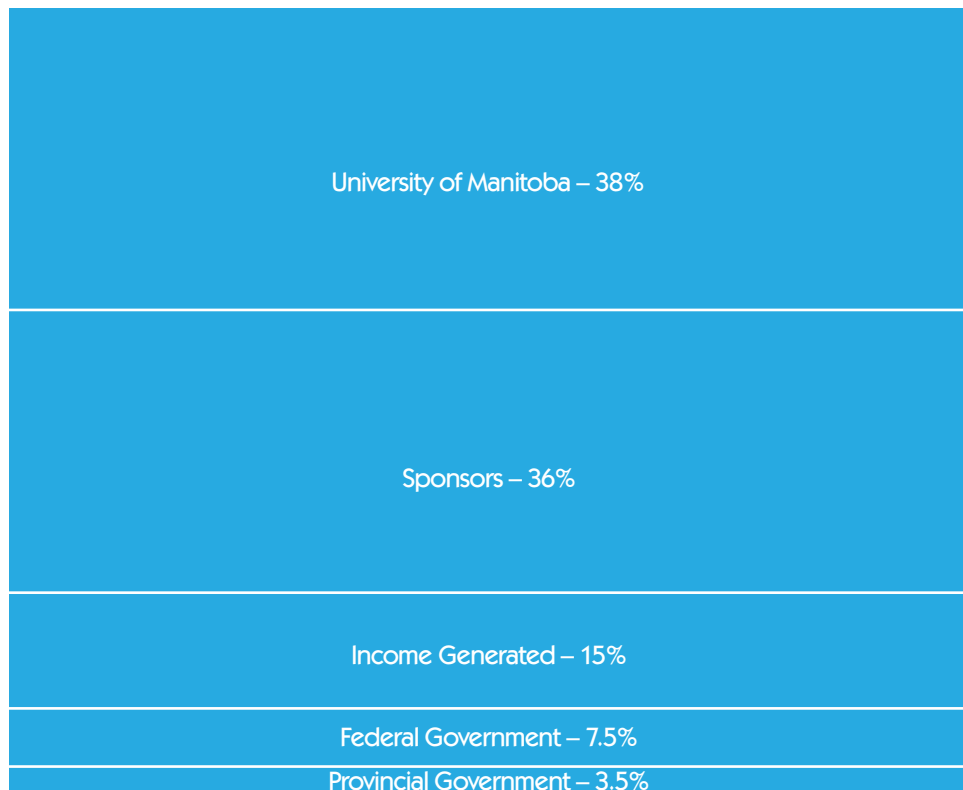
engineer mentor. Together they participate in design-build-test challenges that encourage teamwork, creativity, and ingenuity. Last year 60 girls attended the event sponsored by Faculty of Engineering, KGS Group, ENGAP, FWS Group, Emergent BioSolutions, Standard Aero, Price Industries, NSERC Chair of Women in Science and Engineering, MTS, Engineers Geoscientists Manitoba, and Magellan Aerospace. Special thanks to MTS for sponsoring two teams.

My favourite part was being part of a team and building an original idea. It really empowered me to do more and pursue an engineering career.

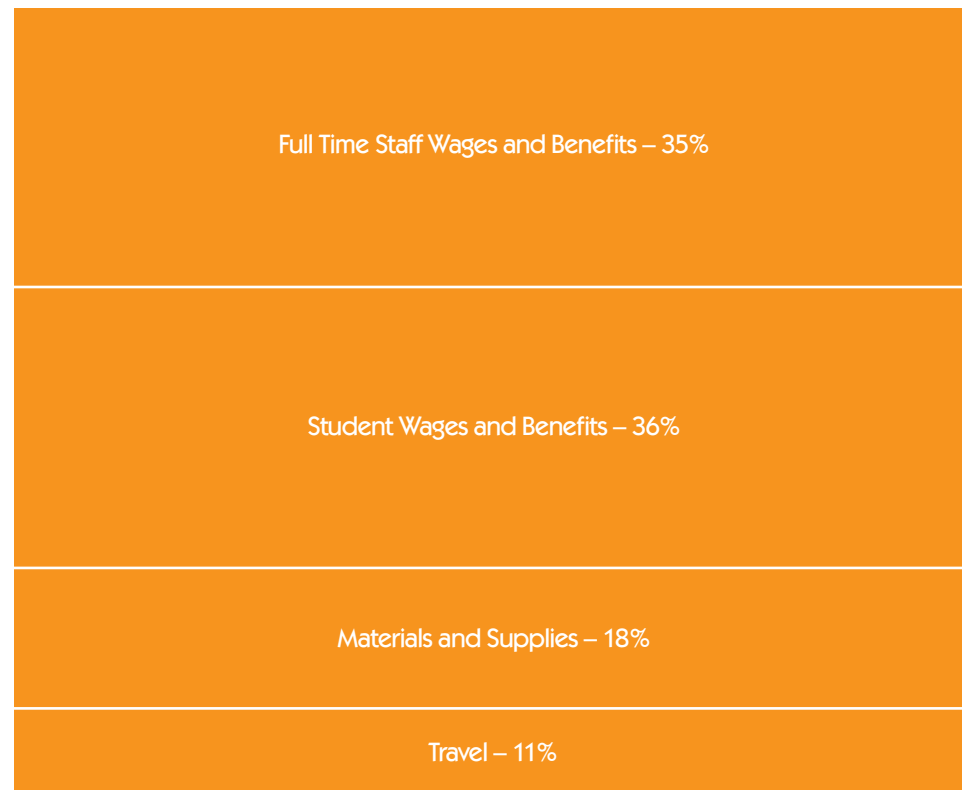
Make Your Move Student Participant

OUR FINANCES

REVENUE: \$500 000



EXPENSES: \$500 000



We are always excited about this program.

Mrs. **Cindy Cordeiro**, St. Gerard School, Winnipeg, MB





OUR SUPPORTERS

2015-2016 FISCAL YEAR FUNDERS

We have many generous supporters that make our work possible.



2015 ACTUA NATIONAL FUNDERS

Actua provides training, resources and support to a national network of local organizations offering science and technology education programs. Actua members reach over 200 000 youth per year. Please visit Actua on the web at www.actua.ca.



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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.





E1-263 EITC
University of Manitoba
Winnipeg, Manitoba
Canada, R3T 5V6
wisekidneticenergy.ca



