



Annual Report

2022-2023



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.



A network member of **actüa**

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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 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.



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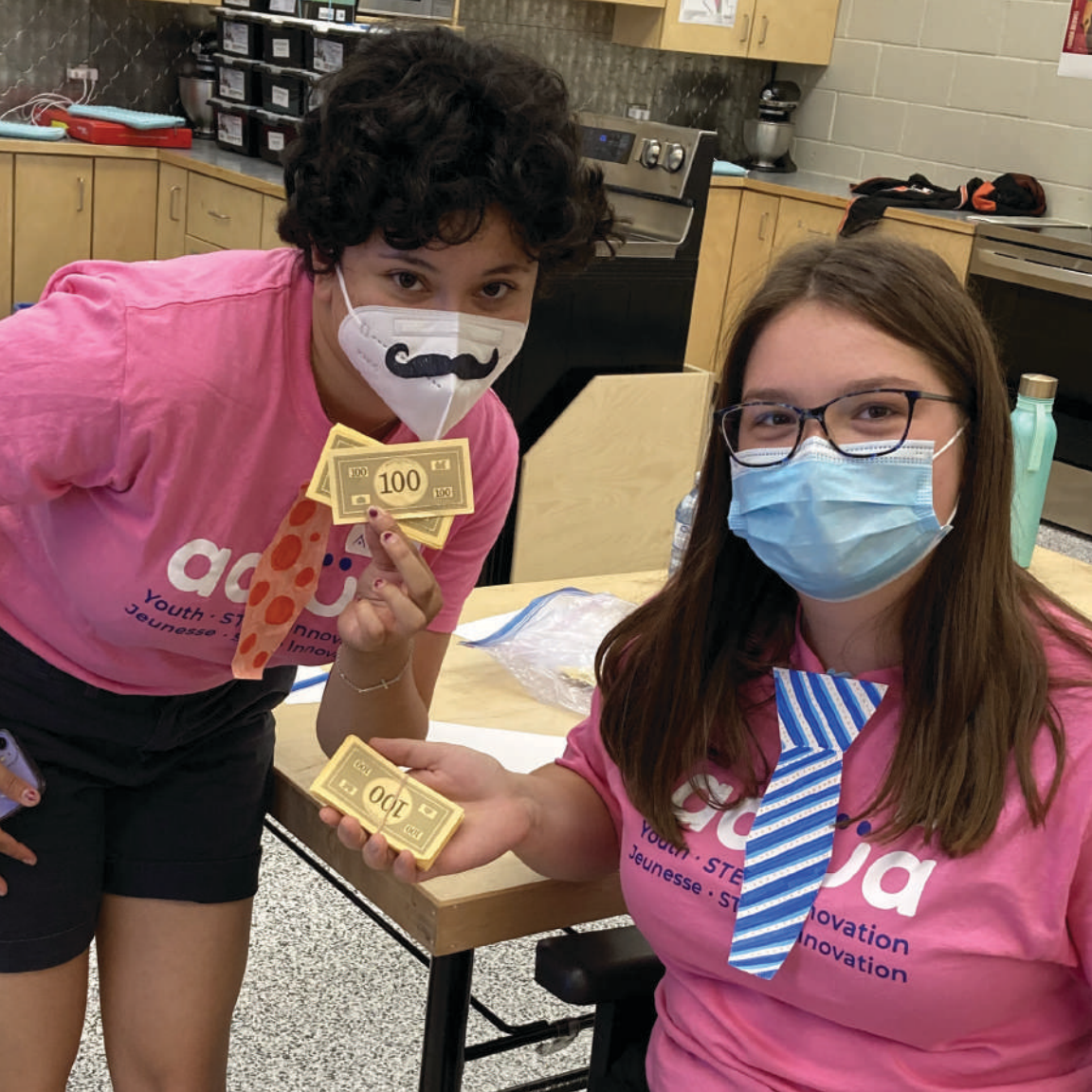
Presenter was excellent!
Knowledgeable, engaging and
flexible in regard to the students'
knowledge and skillset. Highly
recommended!

B. Nurse (teacher), École Arthur Meighen School, Portage la Prairie

OUR INSTRUCTORS

Our instructors are our champions. All of our instructors are undergraduate university students pursuing engineering, science, education 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, gender equity 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. In the spring and summer of 2022, we travelled to many locations, including Thompson, Flin Flon, The Pas, Dauphin, Altona, Morden, Steinbach, and various other rural communities throughout Manitoba, and the First Nations communities of Sopotaweyak Cree Nation and Opaskwayak Cree Nation.



adva
Youth · STE
Jeunesse · ST
Innovation

adva
Youth · STE
Jeunesse · ST
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Innovation



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

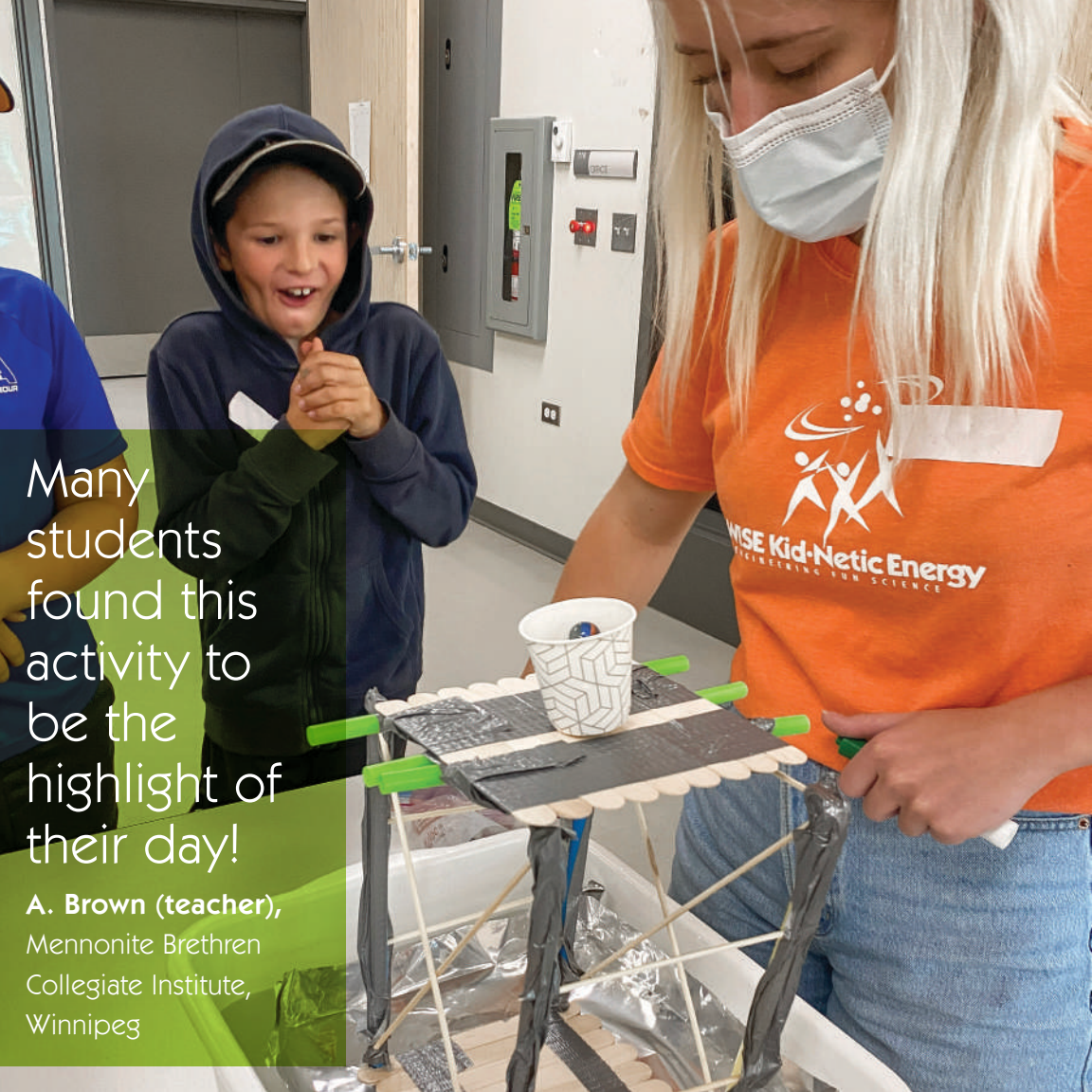
OUR WORKSHOPS

In 2022-2023, we offered over 20 different hands-on workshops, which took place in classrooms and libraries around Manitoba. We had another exceptional year in workshop delivery, and between April 1, 2022 to March 31, 2023 we saw an outstanding 38,743 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 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 the supplies and clean up afterwards. We charge minimally and offer the same rates for schools within and

outside the city of Winnipeg. This year, we were able to continue to offer 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/workshops) to view our current workshop catalogue and see the workshops we offer in French and English.

FUN FACTS ABOUT WORKSHOPS

- Total audience of 38,743 from Kindergarten to Grade 12
- Total CanCode audience of 16,337
- 1724 workshops delivered April 1, 2022 – March 31, 2023
- 746 free CanCode workshops delivered April 1, 2022 – March 31, 2023



Many students found this activity to be the highlight of their day!

A. Brown (teacher),
Mennonite Brethren
Collegiate Institute,
Winnipeg



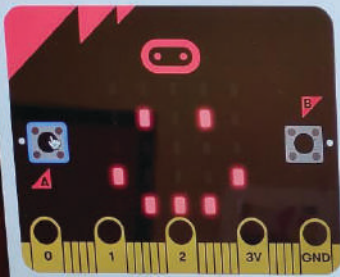
WORKSHOP DELIVERY BROKEN DOWN BY SCHOOL DIVISION

April 1, 2022 – March 31, 2023

DIVISION	KIDS PER DIVISION	DIVISION	KIDS PER DIVISION
Borderland	572	Prairie Rose	410
Brandon	1 007	Red River Valley	502
First Nations	1 151	River East Transcona	7 559
Franco-Manitobaine	484	Seine River	771
Flin Flon	243	Seven Oaks	2 665
Garden Valley	267	St. James-Assiniboia	2 122
Hanover	2 156	Sunrise	560
Interlake	519	Winnipeg	3 798
Kelsey	486	Other/Private	5 256
Lord Selkirk	853		
Louis Riel	1 150		
Mountain View	593	TOTAL STUDENTS	38 743
Mystery Lake	705		
Pembina Trails	4 335		
Portage la Prairie	579		

This was a fantastic learning experience that my students thoroughly enjoyed! [The instructor] was great, very knowledgeable and comfortable with the students as well.

A. Newton (teacher), École Margaret-Underhill, Winnipeg



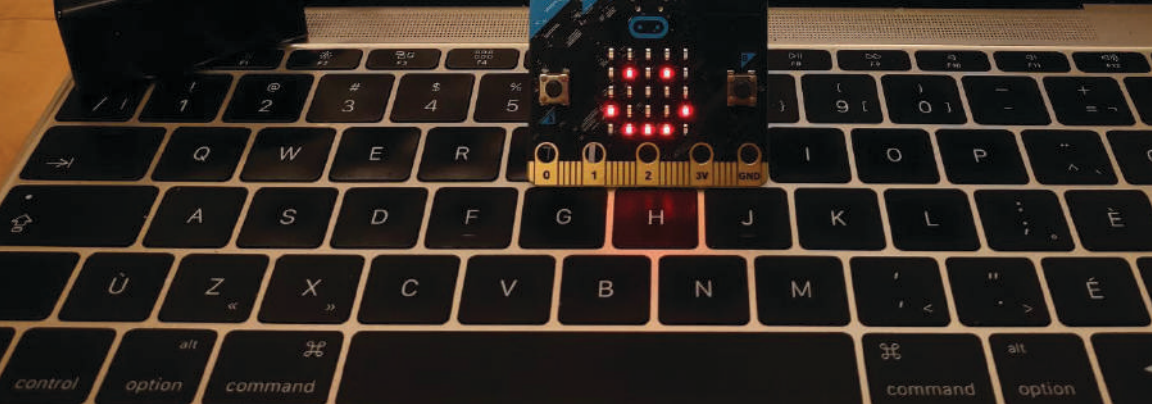
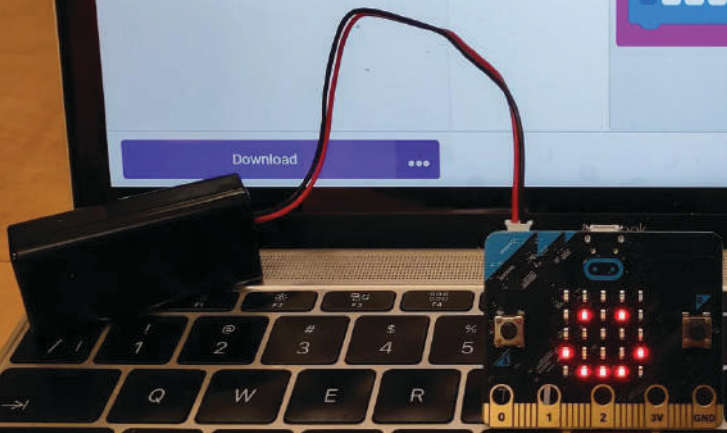
If you have a micro:bit, connect it to USB and click **Download** to transfer your code. Press button **A** on your micro:bit. Try button **B** and then **A** and **B** together.

Toolbox

- Search...
- Basic
- Input

```
on button A pressed  
  show leds
```

Download





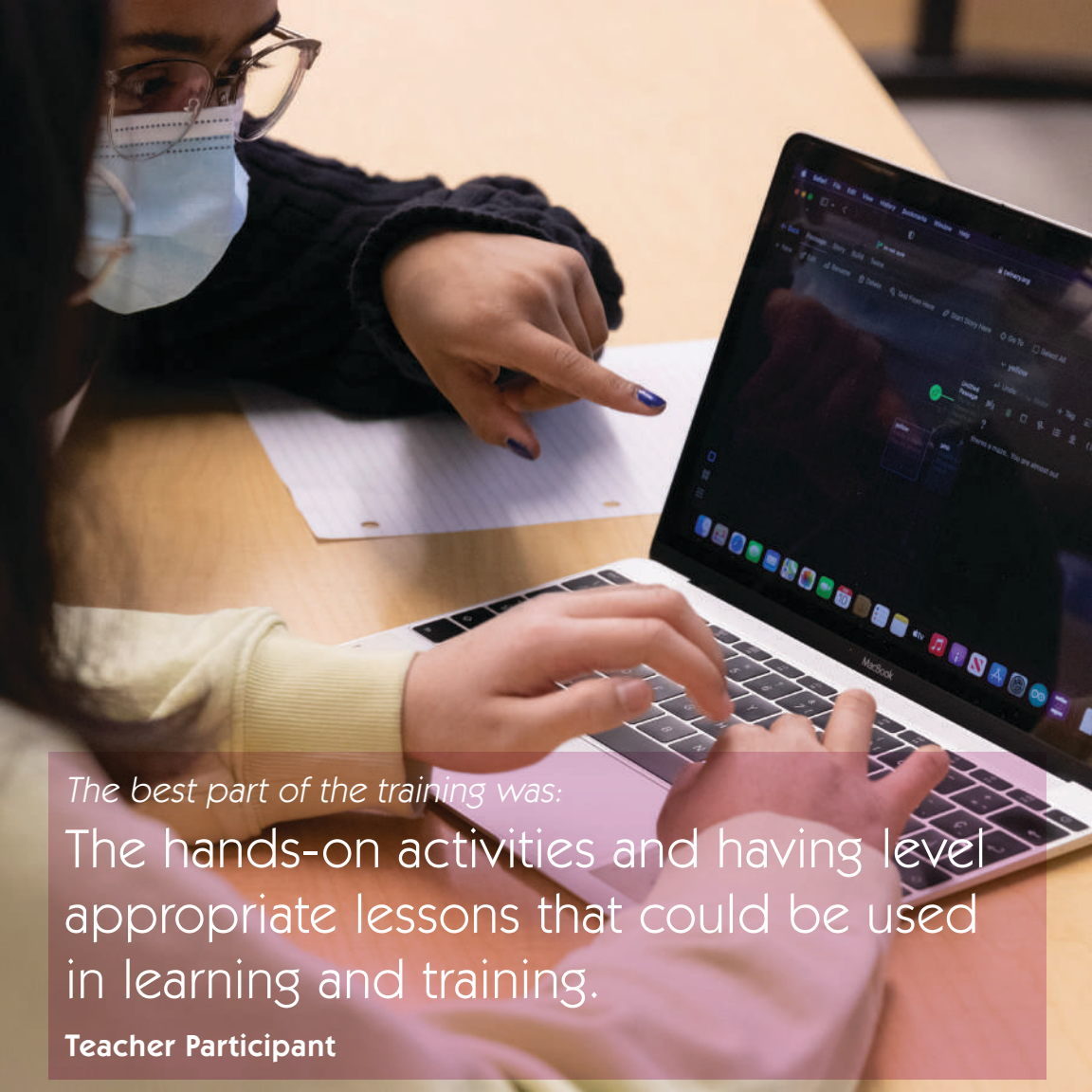
TEACHER PROFESSIONAL DEVELOPMENT WORKSHOPS

Our teacher professional development workshops allow educators to delve into topics like science, engineering and technology and discover ways to integrate hands-on learning surrounding these topics into their classroom.

TEACHER PROFESSIONAL DEVELOPMENT WORKSHOPS

Our teacher professional development sessions focus on the use of coding and digital technology in the classroom. This year, we debuted our new micro:bits professional development session which introduces teachers to the concept of coding, discusses the uses of coding and micro:bits in the classroom and delves into how these concepts can be infused into various subject areas. At these micro:bits sessions, teachers got to try out coding their own micro:bit, which they got to keep afterwards to bring back to their classroom! Between April 1, 2022 and March 31, 2023, WISE Kid-Netic Energy delivered 7 teacher professional development workshops, reaching 76 educators, who teach in schools throughout Manitoba. WISE Kid-Netic Energy presented these teacher professional development sessions in partnership with Hanover School Division,

University of Manitoba Faculty of Education, and alongside teacher special area groups STAM (Science Teachers Association of Manitoba) and ManACE (Manitoba Association of Computing Educators). Special thanks to Melissa Smith, a former WISE Kid-Netic Energy instructor, and current high school teacher for developing the micro:bits professional development sessions and taking part in the delivery of them. Additionally, thank you to the Government of Canada for providing funding through CanCode which allowed us to offer these professional development sessions at no cost to educators.



*The best part of the training was:
The hands-on activities and having level
appropriate lessons that could be used
in learning and training.*

Teacher Participant



A hand is visible in the bottom left corner, typing on a keyboard. The keyboard has several keys highlighted in green and yellow. A large, semi-transparent blue shape covers the right side of the image, serving as a background for the text.

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-build-test challenges, to playing with digital technology.

wisekidneticenergy.ca/camps



OUR CAMPS

In spring-summer of 2022, we ran week-long science and engineering camps in northern Manitoba (Thompson, Flin Flon and Dauphin), southern Manitoba (Altona, Morden and Steinbach), First Nations communities (Sapotaweyak Cree Nation and Opaskwayak Cree Nation), and within Winnipeg through the University of Manitoba, Immigrant and Refugee Community of Manitoba (IRCOM) and BGC Winnipeg. Throughout the summer we offered camps at 15 different locations throughout Winnipeg and around Manitoba.

This summer, camp featured five unique theme days, exposing youth ages 9-12 years old to a variety of science and engineering themes. Our theme days included topics of Engineering, Paleontology, Forensic Science, Sports Science and Coding, and featured various experiments and hands-on activities to get youth excited about science, technology and engineering.

[My child] appreciated learning from her mistakes and improving her skills. She enjoyed coming in 3rd place for her engineering project. It built self-confidence.

Parent of Camp Participant in Thompson

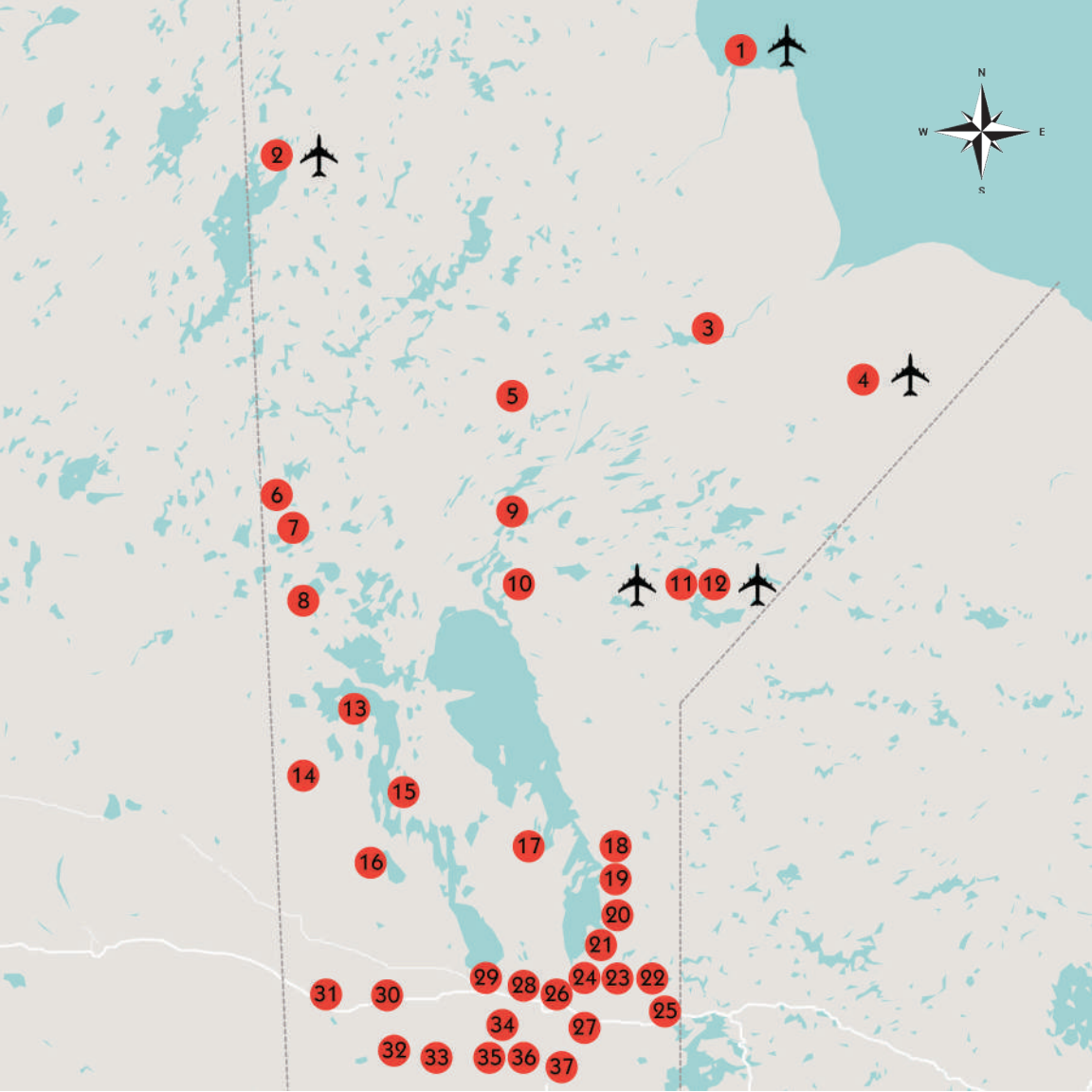


THE GREAT
CANADA
2011

MINELIA

adidas

Stamps



CAMP LOCATIONS SINCE 2001

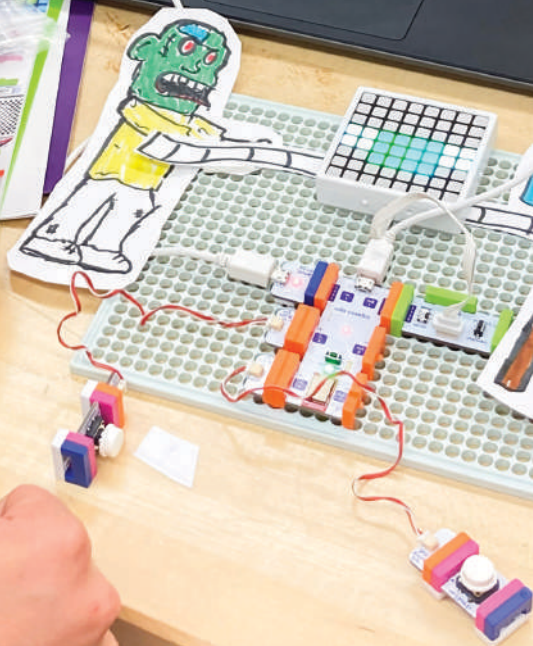
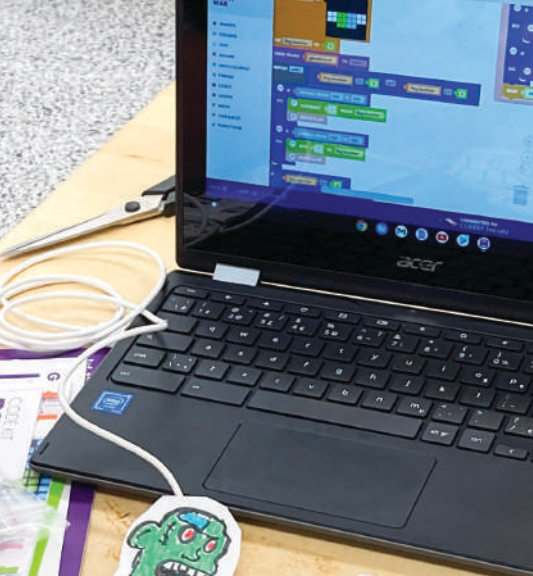
1. CHURCHILL
2. BROCHET
3. GILLAM
4. SHAMATTAWA
5. THOMPSON
6. FLIN FLON
7. FRONTIER SCHOOL DIVISION CAREER X
8. THE PAS & OPASKWAYAK CREE NATION
9. CROSS LAKE FIRST NATION
10. NORWAY HOUSE CREE NATION
11. WASAGAMACK
12. GARDEN HILL FIRST NATION
13. SAPOTAWEYAK CREE NATION
14. SWAN RIVER
15. SKOWNAN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

Highlighted locations received week-long camps in Summer 2022



indicates fly-in location







TECHTOKS

TechTok programming is a hands-on, interactive introduction to coding and digital literacy skills for teens. Using a variety of cool tech tools, youth can explore and expand their knowledge.

wisekidneticenergy.ca/techtoks



TECHTOKS

WISE Kid-Netic Energy was fortunate to be a recipient of CanCode funding from the Government of Canada through our Actua network membership. The CanCode program provides financial support to support initiatives providing educational opportunities for coding and digital skills development to Canadian youth. The program aims to equip youth, including traditionally underrepresented groups, with the skills they need to be prepared for the jobs of today and the future, and includes digital skills and technology education for youth.

In the summer of 2022, WISE Kid-Netic Energy debuted the TechToks summer program for youth 13-15 years old. TechToks consist of 8 free workshops which provide youth with the opportunity

to explore various types of technology and digital literacy skills of their choice through morning and afternoon sessions offered weekly. Sessions included Keep it Basic: An Introduction, GG, Gamer: Code Your Own Video Game, Behind the Grind: E-Commerce & Social Media, A+ in C/C++: A Coding Experience, Going Hand-in-Hand: An Explanation of Bio + Tech, Makey Makey Your Own Arcade Game and Program-A-Friend: A Robot Rundown.

TechTok sessions occurred at various locations throughout the summer, including in Winnipeg, Thompson, Morden and Steinbach, and in partnership with Seven Oaks School Division, St. James-Assiniboia School Division, Winnipeg Libraries, School District of Mystery Lake, Western School Division and Hanover School Division.

One day he told me that he wants to spend more time with coding because this program really inspired him.

Parent of TechTok Participant in Winnipeg







OUR CLUBS

Our clubs are offered on a weekly basis and include hands-on activities, team building and are led by undergraduate students who serve as mentors and role models. Club members have the opportunity to interact with other youth interested in science and technology, 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.

Our Inner-City Girls Club hosted by Pinkham School in 2022 included 18 students in Grades 2-6, and was offered weekly in the spring. Participants met with their instructors each week to explore a new STEM topic surrounding cybersecurity and digital safety and gather for a group meal.

I loved how it brings us a lot you would need to know in the future.

Girls Club Member



I liked meeting new friends, and learning how to make a robot move with code.

Robot Fight 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. We adapted the club name this year to Robot Fight Club to be inclusive of non-binary, trans girls and gender fluid participants. This year, we had our largest group yet, with 32 participants in Grades 7-12.

Over the course of seven 3-hour sessions, the group prepared for the LEGO Mindstorms category at the Manitoba Robot Games. WISE Kid-Netic Energy provided LEGO Mindstorms and iPads for participants to train and compete with, along with five female instructors pursuing computer science degrees to lead the club. Our teams did great and managed to take 1st, 2nd, and 3rd place in their Manitoba Robot Games category!



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 an eyeball, heart, frog, rat, dogfish, bat and pig throughout our Fall and Winter sessions. The Fall and

Winter sessions both consisted of 6 weeks of programming, led by university undergraduate students. In the Fall 2022 session, we had 37 high school student participants, and our Winter 2023 sessions had 30 high school participants. Special thanks to Winnipeg School Division for sharing their space, and teacher Leanne Romaniuk, who volunteered to supervise the program.

It's an interesting program that allows students to learn more about the anatomy of animals.

Dissection Club Participant





It's lit

MEMO LAYER

LOS ANGELES
CALIFORNIA

FOOD FIGHT



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-numbers



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 and youth that might not otherwise be able to access our services. The schools involved in the program include Brooklands, Champlain, David Livingstone, Dufferin, Elmwood, King

Edward, Niji Mahkwa, Norquay, Pinkham, River Elm, Sisler, Southeast Collegiate and William Whyte School. Between April 2022 and March 2023, we delivered 24 workshops through our Adopt-A-Class program, and had 494 interactions with youth. As always, we are thankful to Actua, our sponsors and other private donors for their contributions that make this program possible. Learn how you can contribute by visiting our website.

Students were engaged through the whole session.

D. Alford (teacher), Elmwood High School, Winnipeg



Gaming DAY
2021

BLOXELS





INDIGENOUS OUTREACH

In the spring of 2022, we delivered school workshops in the communities of Sapotaweyak Cree Nation and Opaskwayak Cree Nation and returned to Neil Dennis Kematch Memorial School in Sapotaweyak Cree Nation in November 2022 to deliver more. We spent several days in each community and delivered 75 workshops, interacting with 1301 youth throughout this time. In addition, during the summer of 2022 we returned to Opaskwayak Cree Nation and visited Ma-Mow-We-Tak Friendship Centre in Thompson in order to deliver our weeklong STEM summer camps to youth in the community.

In the winter of 2023, we partnered with Southeast Collegiate to deliver micro:bit sessions, where we offered weekly sessions where Indigenous youth from the school could learn about coding and try out programming their own micro:bit, which they all got to keep at the end of the program. Special thanks to teacher Alundra Elder who volunteered to supervise and host the program at the school.

Coming back from the pandemic and slowly restarting our outreach, we wanted to make Indigenous STEM-specific content to bring to the communities. The previous year 2021-2022, we sent an activity booklet for Kindergarten to Grade 4 to the partnering Indigenous communities for the students to learn about Indigenous plants, and how math is integrated into beadwork. The Grade 5 to 8 beading booklet went further into the math calculations after the students completed a beaded flower patch. Created by our Indigenous Outreach Facilitator Michelle Carriere, with her 10+ years as a Métis beadwork artist, the booklet included video tutorials and Indigenous knowledge that combines STEM and beadwork together. In the 2022-2023 academic year, Michelle delivered a half day workshop, starting the students on their beadwork journey, to the 56 Grade 5 to 8 students in Sapotaweyak's Neil Dennis Kematch Memorial School, and 62 students in Grade 5 to 8 at Pinaymootang School. More to come in the next school year!

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 2023, 46 girls attended the event sponsored by Price Industries, Hatch, KGS Group, Magellan, Manitoba Hydro, MacDon, Morrison Hershfield, Stantec, Dillon Consulting, SMS Engineering Ltd, RTDS, Bell MTS, Engineers Geoscientists Manitoba, and Antec Controls.

I like how they made it possible to ask questions to engineers and see what it would be like in that field.

Make Your Move Participant







GO ENG GIRL & GO CODE GIRL

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

providing information and resources to the students about how they can continue in these fields. In October 2022, Go Eng Girl reached 90 participants, and in February 2023, Go Code Girl hosted 87 participants. Thank you to all of the volunteers who helped to make these two events extraordinary.

I loved talking to people in my team and other teams that had the same interests as me and I loved designing the challenge.

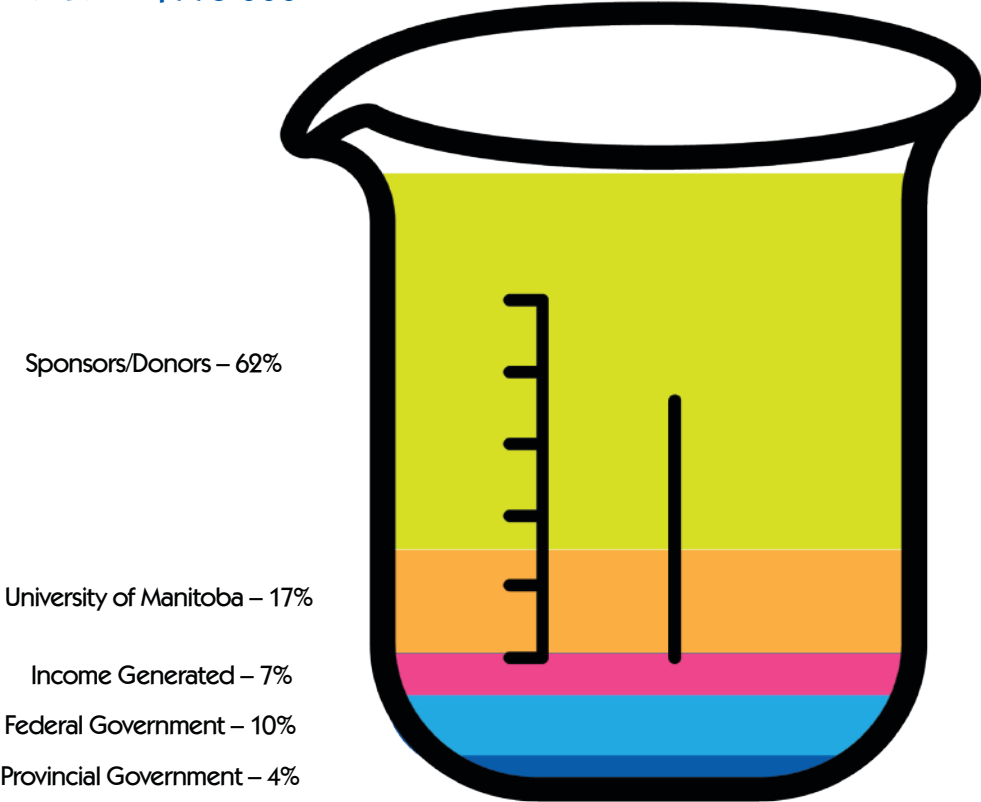
Go Eng Girl Participant

I really enjoyed meeting new people with similar interests to my own, I also enjoyed learning new things about computer science.

Go Code Girl Participant

OUR FINANCES

REVENUE: \$998 000





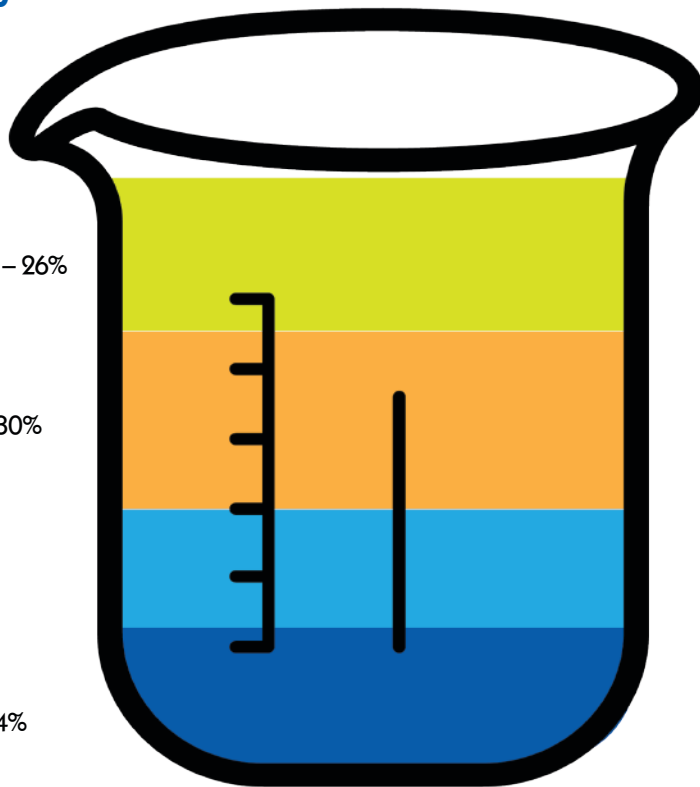
EXPENSES: \$869 000*

Non-Student Wages & Benefits – 26%

Student Wages & Benefits – 30%

Travel – 20%

Materials and Supplies – 24%

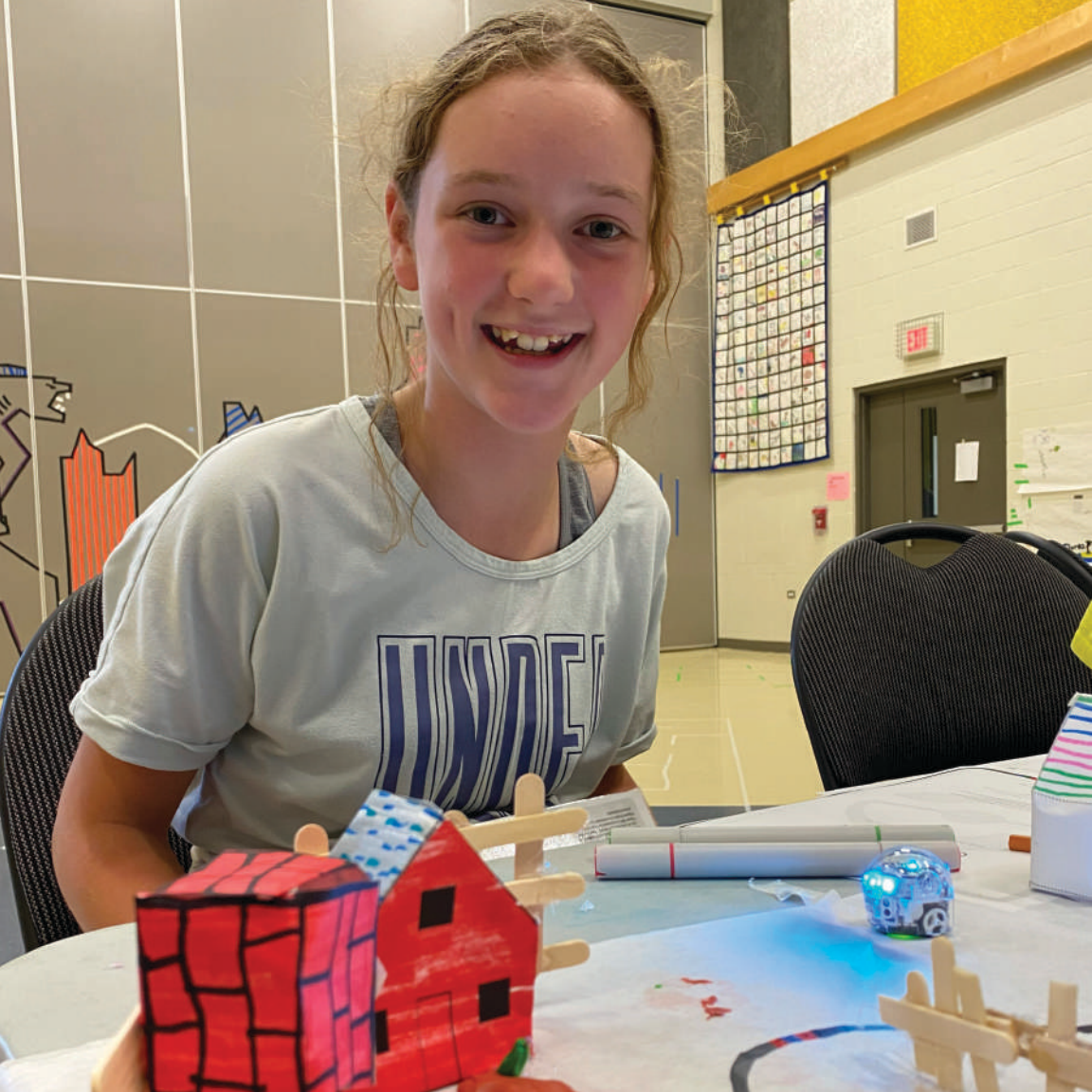


*Note: Surplus exists because we have outstanding youth outreach deliverables from our multi-year grants. The remaining outreach deliverables are a result of limited in-person delivery opportunities during the pandemic. We will continue to reach these outreach targets by using the funding in the coming year.

I liked hanging out with my best friends, learning new skills and getting inspired.

Go Code Girl Participant





OUR SUPPORTERS

2022-2023 FISCAL YEAR FUNDERS

We have many generous supporters that make our work possible.



With funding from

Canada

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

A network member of **actua**

Actua provides training, resources and support to its national network of members located at universities and colleges across Canada in the delivery of science, technology, engineering and mathematics (STEM) education outreach programming. Each year, these members engage over 350,000 youth in 500 communities nationwide. Please visit Actua at www.actua.ca.

2022-23 Actua National 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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