



Youth Science Canada
Sciences jeunesse Canada



YOUTH SCIENCE CANADA 2018-2019 ANNUAL REPORT

Fueling the curiosity of Canadian youth through science, technology, engineering, and mathematics (STEM) projects.



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MESSAGE FROM THE EXECUTIVE DIRECTOR

Since 1962, Youth Science Canada has played a vital role in engaging and supporting Canadian youth through science, technology, engineering and mathematics (STEM) projects. We encourage students to be curious and grow their love for STEM as they work to develop the necessary skills to tackle the challenges of today and tomorrow.

Each year, we find ourselves increasingly inspired by the creativity and passion of our young scientists and innovators. With more than 400 projects showcased at the 2019 Canada-Wide Science Fair, selected from over 25,000 at 103 regional fairs, and the impressive performance of our Canadian representatives at major international science fairs, Youth Science Canada has been able to share an interest in STEM and scientific curiosity with students from around the country. We are convinced that Canada is made better because of this.

The Youth Science Canada adventure in STEM would not be possible without the generous support of volunteers, community partners, sponsors, finalists, board members and staff.

I am filled with pride as I think back to this past year and how, together, we can commit ourselves to an even more rewarding year ahead.

Thank you for taking an interest in our annual report and for your contributions to this important mission.

A handwritten signature in black ink, appearing to read 'Reni Barlow', written over a light blue horizontal line.

Reni Barlow
Executive Director

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ABOUT YOUTH SCIENCE CANADA

Youth Science Canada exists to enable Canadian youth to investigate scientific questions and develop innovative solutions related to current and future challenges.

Our goal is to ensure that Canadian youth:

- Have the inspiration, resources and opportunities that enable them to complete STEM projects, regardless of cultural background, socioeconomic status or geographic location
- Are able to share their discoveries publicly at the local, national and international levels

We deliver our programs in a way that demonstrates responsible stewardship of resources.

We are grateful for the generous support of our partners in the private and public sectors, individual donors and the work of over 8,000 volunteers across the country.

We believe this is one of the most important causes in our world today: formative and affirmative STEM experiences for today's youth, leading to a better and more innovative tomorrow for all.



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“ We’re all born curious and creative, driven to help others and make a change in the world. It’s a richness and force we cannot afford to waste.

- Reni Barlow, Executive Director, Youth Science Canada

OUR MISSION ...

Youth Science Canada creates value for Canada by fueling the curiosity of Canadian youth through science, technology, engineering and mathematics (STEM) projects.

PROGRAMS

Kids are naturally curious, but by middle and high school they're more focused on giving answers than asking questions. Youth Science Canada (YSC) has set out to change that.

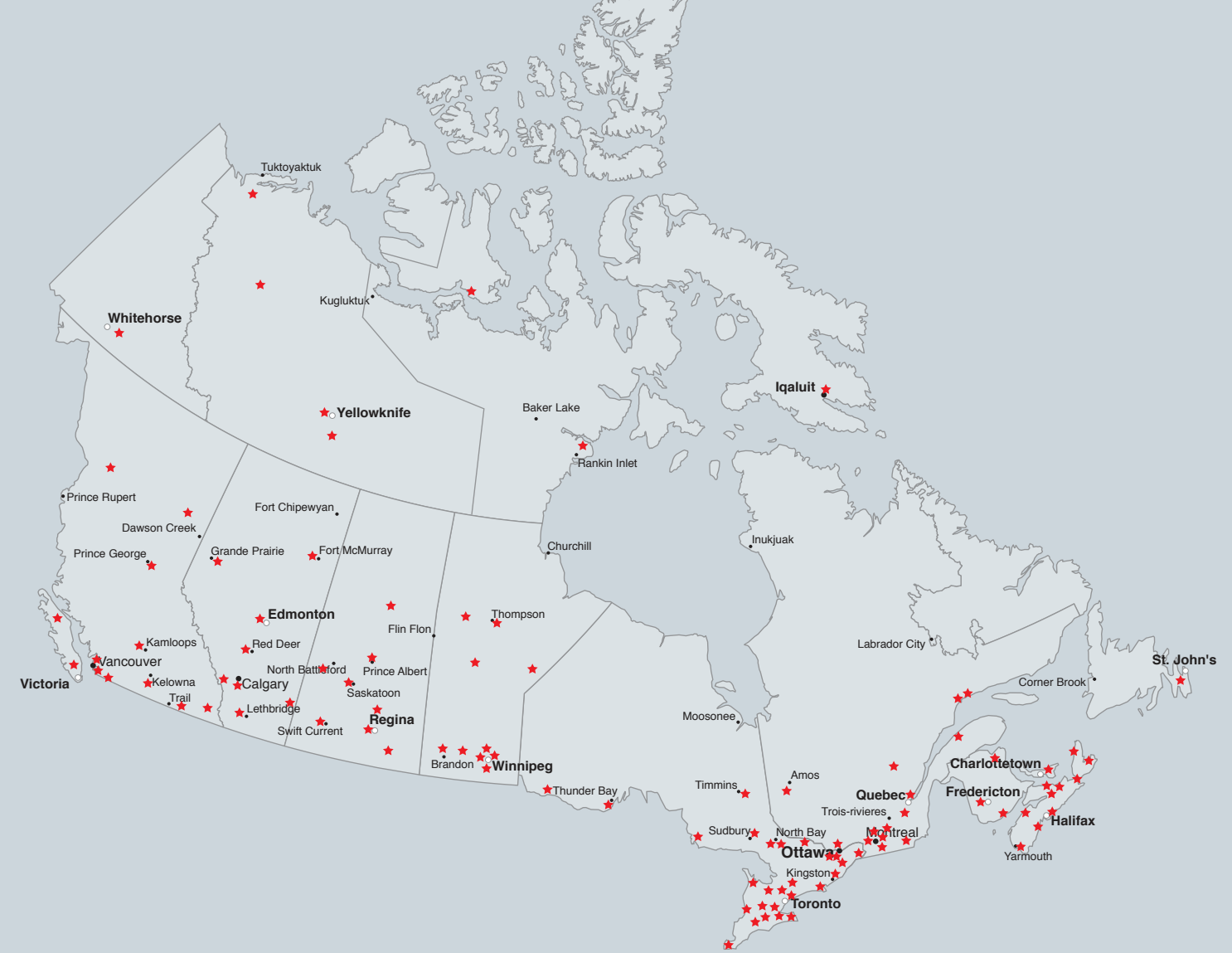
Asking important questions and identifying real-world problems are essential to science, engineering, innovation—and life in the 21st century.

We challenge Canadian youth to engage their curiosity and transform their questions and ideas into projects that tackle current and future issues including digital technology, energy, environment, health and resources.

The results are astounding.



“ *This was my sixth year as a delegate and the experience never ceases to amaze me. The energy, memories, and friendship bonds this event creates with both my finalists and fellow delegates helps to recharge my batteries and prepare me for another year of regional fair work.* - CWSF Delegate, 2019



NATIONAL SCIENCE FAIR NETWORK

Every year, roughly 500,000 K-12 students in Canada do a STEM project.

Of those, approximately 25,000 participate in over 100 regional science fairs in every province and territory, where STEM professionals interact with the young scientists and review their projects. They select the top 500 for the national finals—the Canada-Wide Science Fair.

Thanks to Rogers Communications and its Ted Rogers Community Grants program, Youth Science Canada introduced the Ted Rogers Innovation Award at regional science fairs throughout the spring of 2019. The awards were presented to students with entrepreneurial spirit and a project with commercial potential.

Highlights

- 100 Ted Rogers Innovation awards given at the local level
- \$19,700 in cash awards and regional support funding

Through such partnerships, YSC reaches students, educators and families in northern and remote communities such as Iqaluktuuttiaq (Cambridge Bay), Nunavut and Inuvik, Northwest Territories, Indigenous communities such as Garden Hill, Manitoba and Whycocomagh, Nova Scotia as well as rural areas and urban centres.

CANADA-WIDE SCIENCE FAIR

Our weeklong flagship event—and the largest national youth STEM event in the country—features inspiring projects from Canada’s most promising young scientists and innovators. It’s been held every year since 1962.

The 2019 edition was held at the University of New Brunswick, in Fredericton, from May 11 to 17.

In 2020, CWSF returns to Edmonton, from May 9-15 at the Edmonton Convention Centre.

Highlights

- 409 projects by 465 grade 7-12/Cégep students
- 229 female finalists and 231 male finalists
- 34 self-identified Indigenous students
- Nearly \$1 million in prizes, awards and scholarships
- 213 medal and award winners
- 3 guest projects from the National Science Fairs in Mexico and Thailand
- Over 8,000 visitors over three days
- Hundreds of students from across New Brunswick joined CWSF finalists for a live webchat with Canadian astronaut David Saint-Jacques live from the International Space Station

“ My CWSF experience gets better every year! Because of the great people here, fun activities and the opportunity to meet people from around Canada, I look forward to the CWSF every time I come back. **”** - CWSF Finalist, 2019

TOP PROJECTS FROM THE 2019 CANADA-WIDE SCIENCE FAIR



Helping the Visually Impaired

Manning developed a device that uses ultrasonic sensors and lidar to scan the environment and vibration motor feedback to help people with visual impairments navigate with increased independence.



The Piping Plover

Islay studied an endangered shorebird called the Piping Plover and found that Sauble Beach can help create an environment to prevent their extinction by not raking natural debris from the beach.



Fighting Cancer

Bhavya developed a potentially safer, cheaper and more effective cancer treatment using aptamers (short single strands of DNA or RNA) to help the body’s immune system recognize and kill tumour cells.



DID YOU KNOW?

In 2019, volunteers in Qikiqtaaluk, the easternmost region of Nunavut, held their first regional science fair in 18 years. Thanks to their work, three high school students from the region travelled to CWSF 2019.



STEM EXPO

STEM Expo, the nation's largest youth STEM outreach and promotion event, was held from May 15 to 17, during the last three days of CWSF 2019. The event featured hands-on interactive STEM-related activities, including experimenting, coding, games, robotics, Indigenous knowledge and more. STEM Expo offers a unique opportunity for a wide variety of organizations, institutions, agencies and companies to interact with Canada's top young innovators, expose local students and their teachers to STEM-related opportunities, products and potential careers and connect with the public.

Highlights

- 75 exhibitors
- 10,000 visiting students and teachers from local schools
- 2,000 visitors from the general public
- Three days and one evening

SMARTER SCIENCE

Smarter Science is a framework for teaching and learning K-12 science that emphasizes the investigative, creative and social nature of STEM. Our Smarter Science professional development workshops and resources offer a simple and effective way for teachers to successfully implement scientific inquiry and problem solving in their classroom—and prepare students for STEM projects.

In collaboration with schools, school boards/divisions, and ministries/departments of education, Youth Science Canada has trained thousands of teachers, in every grade, coast to coast to coast.

Highlights

- Partnered with Science East and the New Brunswick Department of Education to offer workshops for key STEM teachers and coordinators across the province
- Delivered workshops through partners in New Brunswick and Québec

TEAM CANADA

Each year, Youth Science Canada selects students to represent the country at renowned international youth STEM project competitions. With the generous support of Youth Can Innovate, a program of the Gwyn Morgan and Patricia Trottier Foundation, Youth Science Canada covers all registration, travel, accommodation and other costs for selected students. In addition, team members receive coaching to help them prepare for world-class judging and refine their presentation skills.

Highlights

- The eight members of Team Canada-ISEF won five awards at the 2019 Intel International Science and Engineering Fair
- Canada's two representatives, Brendon Matusch and Nicolas Fedrigo, won two of the three first place awards at the 2018 European Union Contest for Young Scientists (EUCYS)

OTHER YSC HIGHLIGHTS

- CWSF and Team Canada-ISEF alumnus, Danish Mahmood, named 2019 Global Teen Leader by the We Are Family Foundation
- 20 CWSF and Team Canada finalists met with Prime Minister Justin Trudeau and Minister of Science and Sport, Kirsty Duncan at the annual Prime Minister's Science Fair in September, 2018

ALUMNI SPOTLIGHT

Adam Noble (CWSF 2013 Best Project Award Winner) founded Noblegen, a company that is redefining the future of nutrition, based on his award-winning project.

Ann Makosinski (CWSF 2013 Gold Medalist) was featured in an episode of CBC's *The Nature of Things* with her "Hollow Flashlight" project.

Stella Bowles (CWSF 2017 & 2018 Silver Medalist) has published a book, *My River*, in which she documents her discovery of raw sewage pollution in local rivers.



SPONSORS

INNOVATORS \$100K+



DEVELOPERS \$50K+



EXPLORERS \$25K+



MOTIVATORS \$10K+

- APEGNB
- Edmonton Community Foundation
- Science Odyssey—Powered by NSERC
- York University—Lassonde School of Engineering

FRIENDS \$1K+

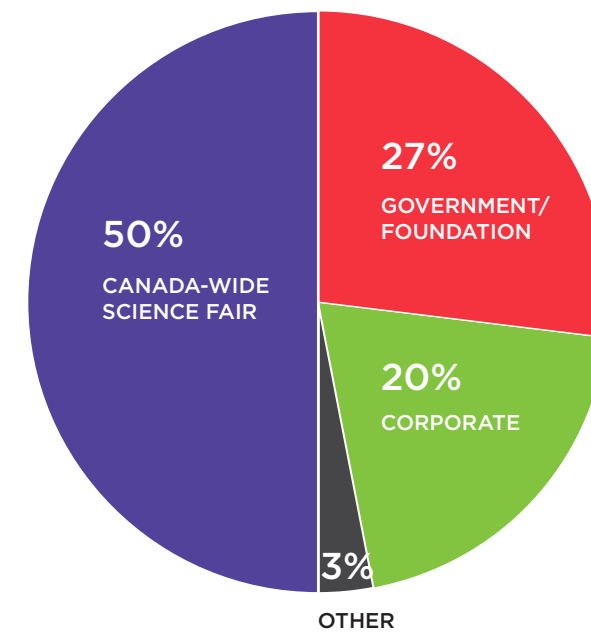
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| The Actuarial Foundation of Canada | Michelin |
| Canadian Acoustical Association | Nutrients for Life Foundation Canada |
| Canadian Association of Physicists | Ontario Power Generation |
| Canadian Museum of Nature | Perimeter Institute for Theoretical Physics |
| Canadian Science Publishing/STEM Fellowship | Royal Astronomical Society of Canada |
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| Canadian Society of Senior Engineers | SHAD |
| Canadian WEF Member Associations, the Canadian Water and Wastewater Association, and Jacobs | Snapology |
| Carlson Wagonlit Travel | Statistical Society of Canada |
| Dalhousie University, Faculty of Science | Statistical Society of Canada—Biostatistics Section |
| Engineering Institute of Canada | The University of British Columbia (Vancouver) |
| Enterprise Holdings Foundation | University of Manitoba |
| First Nations University of Canada | University of Ottawa, Faculty of Science |
| 4-H Canada | University of Toronto, University of Toronto, Faculty of Applied Science and Engineering |
| | Western University |

FINANCIAL SUMMARY

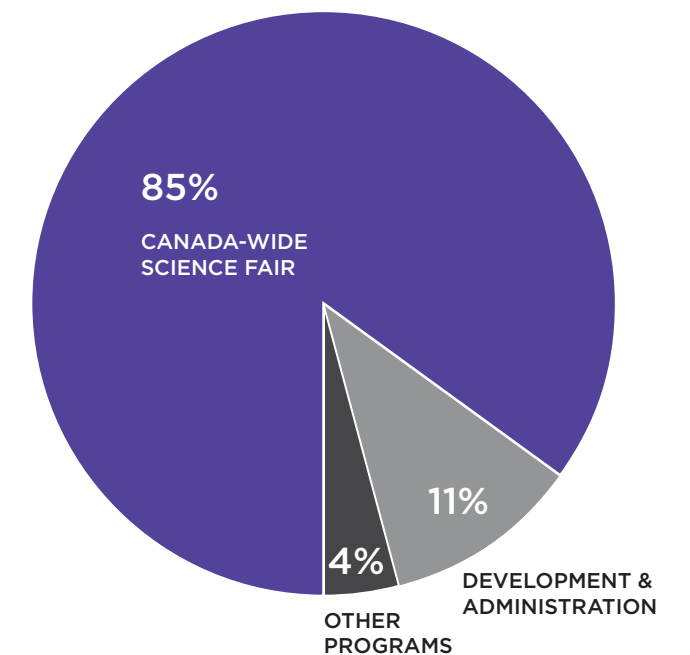
In 2019, Youth Science Canada welcomed Rogers Communications as a major sponsor. Ted Rogers Innovation Awards were offered at regional science fairs (a \$100 cash prize plus \$100 to support the region). Youth Science Canada also secured an NSERC PromoScience grant to support the new National Youth STEM Project Development Program.

The budget for Youth Science Canada in 2019 was 2.4 million. This does not include the operating budgets of our 103 National Science Fair Network members.

REVENUE



EXPENSES



WHAT NEXT ...

NATIONAL YOUTH STEM PROJECT DEVELOPMENT INITIATIVE LAUNCHING FALL 2020

Each year, as many as 500,000 students across Canada undertake a STEM project. Our new National Youth STEM Project Development Initiative will ensure that all middle and high school students across the country working on STEM projects are able to connect directly with Youth Science Canada.

During the first phase, we will focus on developing online resources and community-based support for the 25,000 regional science fair participants each year to take their project to the next level. In the second phase, we will extend these resources to support entry-level students starting their first project. Seeded with a three-year PromoScience grant from NSERC, Youth Science Canada is aiming to launch this nationwide program at CWSF 2020. Full implementation will require new funding of at least \$300,000 per year.

At the national level, we're exploring opportunities to expand our annual STEM Entrepreneur Bootcamp, generously supported by Rogers Communications and York University's Lassonde School of Engineering. This year, 19 students selected at the Canada-Wide Science Fair spent a week examining their award-winning projects with a critical eye and learning what it takes to transform their novel ideas into successful businesses.

Highlights

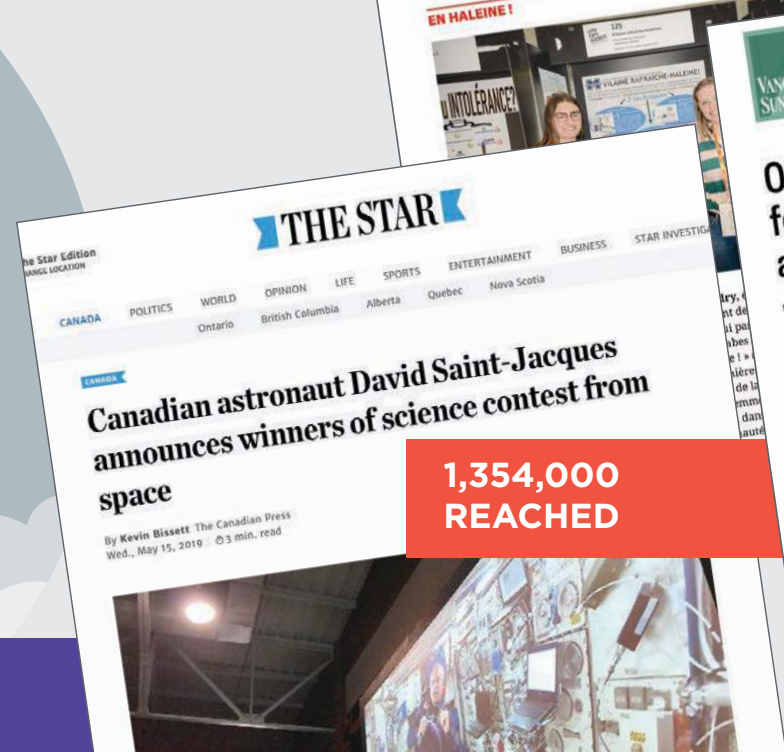
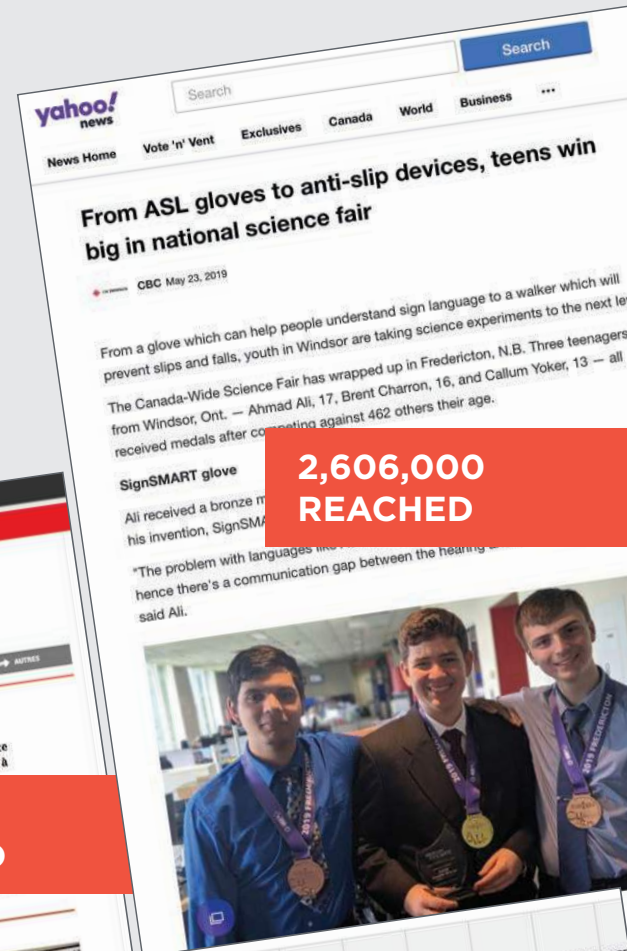
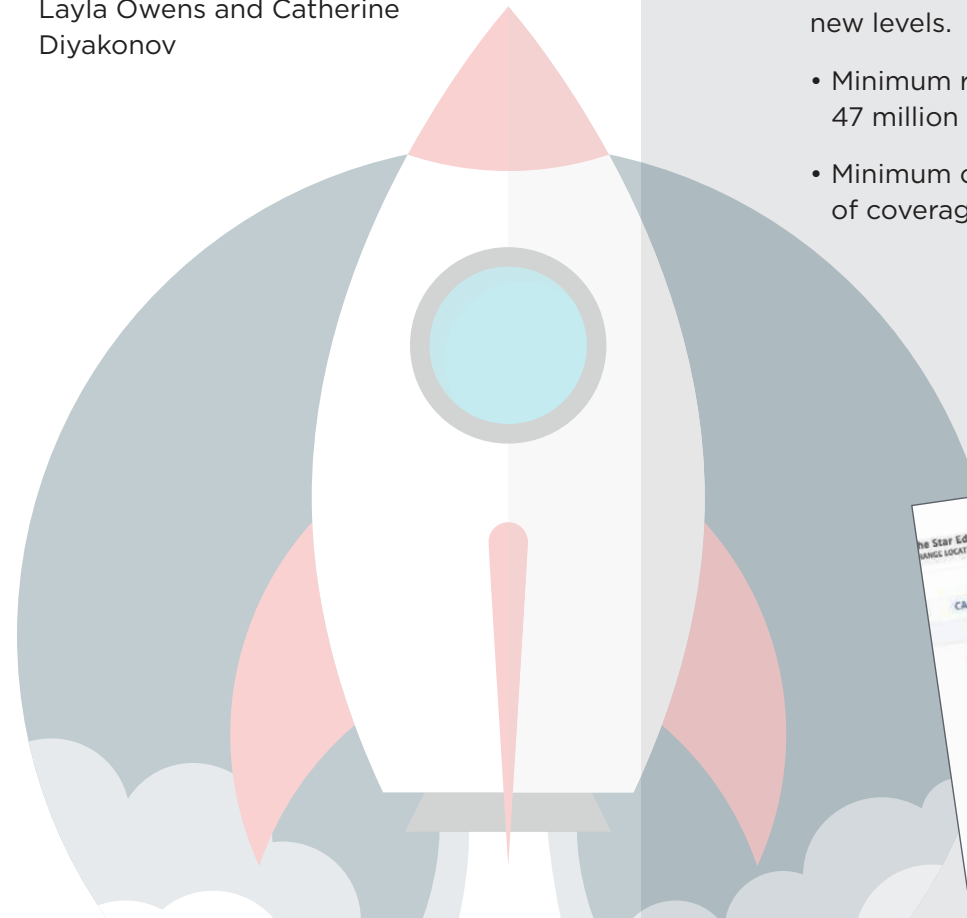
- 10 Ted Rogers Innovation Awards presented at CWSF 2019 provided full bootcamp scholarships, including travel
- Three York University Bootcamp Scholarship Awards presented at CWSF 2019 provided full bootcamp scholarships
- The final pitch competition was won by Orange Clearwater—the team of Mira Bhattacharya, Layla Owens and Catherine Diyakonov

YOUTH SCIENCE CANADA— IN THE NEWS

Youth Science Canada works diligently throughout the year to tell our story through media at the national, regional and local levels.

We strive to reach Canadian students, members of the education community, government and the public through traditional and social media. Together, we're getting the word out that STEM is important and a priority for our education systems and the leaders of tomorrow. In the past fiscal year, the volume of earned media has reached new levels.

- Minimum reach of 47 million impressions
- Minimum of 493 units of coverage





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