

# **Mining Matters Annual Newsletter**

2019





WHERE





Discover

















#### A Message from the CEO



At Mining Matters, we are passionate about educating young people about Canada's geology and the vast array of careers available in the minerals industry. For the past 25 years, our talented staff have worked hard to inform students, teachers and members of the public about the importance of rocks, minerals, metals, mining and their applications in daily life. Minerals are core to advancing our economy and standard of living.

A key step to seeing the industry thrive is building relationships with Indigenous communities. Maintaining positive relations with Indigenous peoples is a pillar of our organization. We continue to work with Ring of Fire communities in Northern Ontario, educating young people about Earth science, sustainable mineral resource development and careers

in the minerals industry. We are also strengthening our relationships in northern Canada through program delivery in the Northwest Territories, Yukon, and the Kitikmeot and Kivalliq Regions of Nunavut.

We have expanded our partnerships with Frontier College and DiscoverE by providing kits and materials to facilitate Earth science-themed activities at day camps.

This newsletter also provides a glimpse into our future with this year marking an important milestone for us. While 25 years of program delivery has enabled us to excel in teaching others about Earth science and the minerals industry, we are always looking to improve our content and better our programming with the most up-to-date information. In "What's New" you will read about engineering and robotics activities we have added to our repertoire.

I invite you to explore our annual newsletter, which not only recognizes our supporters and highlights the many achievements we have had this past year, but also commemorates 25 years of bringing the wonder of Canada's geology to classrooms and beyond and outlines the new opportunities we are embracing to enhance our work.

Thank you to our numerous partners and contributors for supporting us and helping us to grow and develop year after year.

Patricia Dillon President and CEO





Photo Credit: Yukon Chamber of Mines



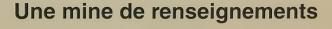




Photo Credits: billbradenphoto Courtesy of TerraX Minerals Inc.

groundWORK 2020

#### **Table of Contents**

Message from the CEO 2
Celebrating 25 Years 4
What's New

New Robotics and
Engineering Activities 5
Translation of Posters into
Indigenous Languages 5
Inuktitut Activity Book 5

**Updates** 

Newmont Goldcorp Coffee
Mine Project 6
Geoscience Aware Challenge 6
Our Work in Northern Canada 7
Partnership with Agnico Eagle Mines
Ring of Fire Partnership and Update 8
North Bay Mining Week 9
National Indigenous Peoples Day 9

PDAC Convention Education Program 11

Thunder Bay Mining Day 9

IBM STEM4Girls Highlights 13 Mining Matters Far and Wide Thanks to our Contributors! 16 **Reporting Back** STEM Camp 18 Rocks + Kids = OpportunitiesWorking with the Outland Youth **Employment Program** Reaching Out in Québec 19 Mining Matters Engages the Public 20 Mineral Resources and Mining **Education Tours 20** Internship Highlight 21 Co-op and Summer Students 21 **Looking Ahead** 

Science Literacy Week 22

**STEM Education Partnerships** 

12

**Building Mineral Literacy through** STEM Education 22 WHERE Challenge 23 **Annual Events** Mining Matters Diamond in the Rough Golf Classic 24 Rock Cycle Ride for Minerals Education 24 Mining Matters Hockey Tournament 24 KPMG Ping-Pong Tournament 24 How to Donate 25 Field Trip Subsidy Program 26 Save the Dates 26 Who We Are 28 Board of Directors and Officers 28 Staff 28



# CELEBRATING YEARS

The year 2019 marks 25 years of supporting teachers with resources and training in mineral resources education! Throughout the years Mining Matters has delivered programs in every province and territory from coast to coast to coast. As we reflect on our achievements, we are reminded of how it all began.

In 1994, the Prospectors & Developers Association of Canada Education Committee developed a teacher resource kit, complete with lesson plans and activities, that would empower educators when teaching rocks and minerals units in schools. Though this topic was embedded into the school curriculum, the Committee found that teachers often lacked the background knowledge and resources to deliver the content in an in-depth and meaningful way. As a result, the original "Mining Matters" kit was developed by teachers for teachers.



Twenty-five years later, Mining Matters has grown from a single idea into a nation-wide charitable organization that develops curriculum-linked resources for teachers, delivers programs to youth in schools and Indigenous communities and takes part in public outreach events, like gem and mineral shows.

Since its inception, Mining Matters has formed government, industry, education and community partnerships, and has now reached an estimated 750,000 people with its hands-on resources and information about rocks, minerals, metals and mining.



We would like to give a very special thank you to the following corporations, individuals, governments, associations and foundations who have supported us since the very beginning:

- · Barrick Gold Corporation
- Canadian Geological Foundation
- · Canadian Institute of Mining, Metallurgy and Petroleum
- · Ontario Mining Association
- Ontario Ministry of Energy, Northern Development and Mines
- Prospectors & Developers Association of Canada
- Teck Resources Limited
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- Stuart Averill



#### **New Activities**

Always striving to improve our programs, Mining Matters stays abreast of technological advances in the minerals industry and trends in education in order to maintain the highest quality of programing possible. To do this, several new activities were developed and more are in the works.

The first is all about robots! Our robotics activity gives students the opportunity to drive, program and utilize various sensors that many robots use in industry. Students are able to explore the capabilities of robots (from following a line to navigating a maze) as well as their limitations; they are only as good as their program.

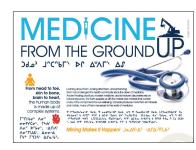
To add to the Mining Matters suite of STEM activities a new challenge has been implemented: building a conveyor belt. Students are tasked with using ordinary materials, such as cardboard tubes, skewers, shelf paper and other household items to create a functioning conveyor belt. This activity can easily be scaled up or down to accommodate different learning needs.

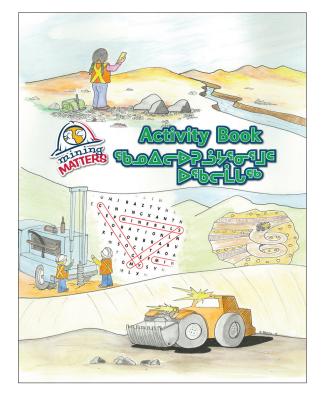
Moving forward, Mining Matters is looking to utilize Virtual Reality (VR) technology within its programs. We met with UP360, a corporation that is creating several immersive simulations that will help youth explore various jobs, such as a mine engineer. VR also allows participants to experience mine tours all within the safety of their classroom.

#### Translation of Posters into Indigenous Languages

Thanks to the generosity of Crown-Indigenous Relations and Northern Affairs Canada and the Ontario Ministry of Energy, Northern Development and Mines, Mining Matters added two more of the Mining Makes It Happen posters to its roster of translated resources. *Medicine from the Ground Up* and *Music from the Earth*, the two newest of the series, have been translated into Cree, Ojibway, and Oji-Cree. The Rocks of Ontario and Fossils of Ontario posters are also now available in these languages.

Next year, Mining Matters hopes to translate *Power to the People* as well as add Inuktitut to the list of languages this series is available in. Electronic versions can be found on our website MiningMatters.ca or to request copies, please email us at info@miningmatters.ca.





#### **Inuktitut Activity Book**

We have translated the Mining Matters Activity Book into Inuktitut and Inuinnaqtun to make this resource more accessible to our Inuit participants and partners. We also changed some of the artwork to reflect the tundra landscape and added northern lights to the back cover. We hope that by helping youth relate to the content in this way, they will find the subject matter more interesting and meaningful.

Mining Matters would like to thank the following organizations for their support of our Indigenous languages translation initiatives:

- Agnico Eagle Mines
- · Aglu Consulting and Training Inc.
- · Crown-Indigenous Relations and Northern Affairs Canada
- · Kitikmeot Corporation
- · Ontario Ministry of Energy, Northern Development and Mines
- Outcrop Nunavut
- · Wawatay Communications Society
- wintranslation



#### Newmont Goldcorp Coffee Mine Project

Photo Credits: billbradenphoto Courtesy of TerraX Minerals Inc.

Mining Matters has collaborated with Newmont Goldcorp for more than a decade. More recently, we have worked with them at their Coffee Mine Project in Yukon.

If asked about the Yukon, most Canadians might conjure up visions of the Gold Rush. While the prospecting boom of that former age has long since come and gone, gold exploration is still alive and well in this territory.

This past year Mining Matters was pleased to expand our partnership with Newmont Goldcorp, setting the stage to travel to one of the far corners of Canada's north, hot on the trail of Goldcorp's Coffee Project and the steadfast explorers from long ago. This program featured four *Mining Rocks* programs working with 75 students from Dawson City and Pelly Crossing — two of the neighboring communities to the Coffee Mine Project development.

Students ranging from grades 4 through 10 were challenged to look critically at Canada's mineral resources, making connections to the everyday items that are built into modern day society.

We are grateful for Newmont Goldcorp's continued support and thrilled at the many opportunities we have had to deliver programs near their various mines and projects, including Porcupine, Musselwhite, Red Lake, Éléonore and Borden.

Geoscience Aware Challenge

Last year Mining Matters, the Government of Manitoba and the Canadian Geoscience Education Network collaborated to create the "Geoscience Aware Challenge" for the Girl Guides of Canada, Manitoba Council. The Challenge explores geoscience literacy principles through more than 30 hands-on learning activities.

In 2019 280 Manitoba Guides completed the Challenge and received their badges! Plans are in place to expand the Challenge to other jurisdictions, including the Northwest Territories.





#### Our Work in Northern Canada

#### Hay River and Whitehorse

Last Fall, we partnered with Resources and Energy Development Information (REDI) and the Government of Northwest Territories to participate in the K'atl'odeeche First Nation (KFN) Mining Symposium, which took place at Soaring Eagle Friendship Centre in Hay River, NT.

Mining Matters delivered a presentation to the Youth Empowerment & Training to Employment group (YETTE) about the stages of the mining cycle and the relevance of minerals in everyday life. The presentation emphasized the importance of reclamation and introduced youth to exciting job opportunities available in the industry. We also facilitated a student workshop for 52 students

from three different schools, teaching them about various minerals and how they are used to make different objects.

West of Hay River, Whitehorse hosted the 46<sup>th</sup> Annual Yukon Geoscience Forum and Trade Show last November. We partnered with Yukon Geological Survey to engage the public with geology-themed activities. Hundreds of children and adults visited the Mining Matters booth during the Family Day Open House to look at topographic maps, discover the properties of minerals and learn about their uses. It was a fantastic outreach program in the Yukon and we look forward to returning this year.



# SPOTLIGHT: Partnership with Agnico Eagle Mines

We are always seeking new opportunities to educate youth across Canada about science, engineering, geology and mining. In the spring and summer, we collaborated with Agnico Eagle Mines and the Hamlets of Rankin Inlet, Arviat and Baker Lake to deliver unique school and summer camp programs that engaged 270 youth and community members.

The school programs were designed to align with the Nunavut science curriculum for grades 7 to 9 and used the themes of Earth science and mineral resources to address curriculum expectations under the topics of Planet Earth, Mechanical Systems, Light and Optical Systems and Environmental Chemistry. The summer camp programs were broader and touched on multiple topics related to rocks, minerals, metals and mining. All programs included a strong focus on careers in the minerals industry.

The programs were very well received by both youth and community members:

I think you should keep coming here every year."

—Grade 7 student, Rankin Inlet



We are grateful to have partnered with Agnico Eagle Mines and the Kivalliq communities and look forward to returning to Nunavut next year.

Thank you for coming here and taking the time to teach us and talk with us. The activities and such were very fun. I hope to do more activities and [learn] like this again."

-Grade 8 student, Arviat









#### Ring of Fire Update

While it's great to build new partnerships, we also value continuing former ones. For the 8<sup>th</sup> consecutive year, Mining Matters partnered with the Ontario Ministry of Energy, Northern Development and Mines (MENDM) to deliver programs in Ring of Fire communities. With the support of MENDM, we were able to reach more than 400 students in 15 First Nations communities across Ontario. We returned to Nibinamik, Constance Lake, Long Lake #58, Ginoogaming, Attawapiskat, Webequie, Fort Albany, Neskantaga, Aroland, Marten Falls, Eabametoong and Kashechewan. In addition, we expanded our programming to three new communities this year: Sandy Lake, Deer Lake and Keewaywin.

Our staff eagerly shared their passion for Earth science and students were excited to learn about fundamental concepts in geology and the mining industry. Favourite activities among participants included Cookie Mining, Product Matching, Fossil Discovery and Soapstone Carving. These activities explore the importance of and processes within the mining industry and reinforce Indigenous traditions.

Translated materials, including the Rocks of Ontario poster, connected participants through their native language to increase their understanding of Earth science concepts. Mining Matters was also pleased to deliver five teacher training workshops.

Mining Matters thanks MENDM for their support and commitment to mineral resources education. We look forward to continuing this partnership into 2020 and for many years to come.





#### Community Spotlight: Keewaywin First Nation, ON

For the first time ever, Mining Matters traveled to Keewaywin First Nation, a small Oji-Cree community with a population of 400. We delivered a three-day *Mining Rocks* Earth Science Program during which the main focus was to inform youth about career opportunities in mineral exploration and mining. We engaged students with fun activities like Starburst™ Rock Cycle, which illustrates the three rock types and demonstrates how each one forms using pieces of candy. Our Water Filtration Engineering Challenge was another favourite based on feedback. The program also included a community night that many members enjoyed as they participated in Amethyst Jewellery Making and Soapstone Carving.

The program was considered a success as the feedback indicated that 100% of participants enjoyed what they learned and 91% are more interested in science and engineering than prior to the program.

We learned about how to clean water and what is inside the earth."

-Grade 6 student, Keewaywin First Nation

I learned that chalcopyrite is conductive and that quartz is one of the hardest minerals."

-Grade 8 student, Keewaywin First Nation

#### North Bay Mining Week

Mining Matters strives to expand their reach to provide fun, educational programs to students across Canada, enriching the curriculum and supporting the lessons teachers are delivering in class. Thanks to the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) and its goal to educate local youth about Earth science and the minerals industry, Mining Matters had the exciting opportunity to connect with elementary schools in North Bay to teach students about the importance and marvels of rocks, minerals and mining.

Our staff travelled from Toronto to North Bay with boxes packed to the brim with hands-on activities for the students. Alongside the Mining Matters team, representatives from CIM shared their experiences about working in the minerals industry as students listened with curiosity and admiration. Students were inspired by their stories and several expressed their interest in pursuing this field.

Mining Matters is grateful to CIM for their generosity and assistance in coordinating our programs in North Bay during Mining Week. A special thanks to Gerry Black, Don Winter and Ryan Lyle of Cementation, as well as Geologist, Yana Preston, who enhanced our programs by volunteering as industry role models for students..

My favourite activity was the mining cookies because I want to be in a mine when I am older."

—Grade 4 student, Alliance Public School

Riocke

I want to be a digger, explorer, operator, or mathematician."

—Grade 4 student, École élémentaire catholique Saints-Anges

The program exceeded our expectations. The instructors are engaging and the hands-on activities kept all the kids learning."

—Teacher, Alliance Public School



#### National Indigenous Peoples Day

For National Indigenous Peoples Day celebrations, Mining Matters participated in events in Timmins and Winnipeg where nearly 300 people visited the Mining Matters booths.

In Timmins, we partnered with Newmont Goldcorp Porcupine Gold Mines engaging youth in hands-on activities, such as metal embossing, mineral discovery and PPE dress up. In Winnipeg, we had fun with Rock Discovery, Mineral Discovery and Product Matching. Children received Mining Matters activity and colouring books and were given the opportunity to speak with industry role models.



#### **Thunder Bay Mining Day**

Thunder Bay Mining Day is an annual event that celebrates mining and exploration and draws thousands of people from the town and surrounding areas to Marina Park, which overlooks the Sleeping Giant.

Mining Matters hosted a booth, alongside dozens of other companies and organizations, to teach visitors about the stages of the mining cycle and how to identify minerals based on their physical properties. The different booths featured interactive games, displays and exhibitors all geared towards families to learn more about the industry and the career opportunities it offers.









#### PDAC Convention Education Program 2019

At the PDAC Convention, 80 Grade 4 students and 80 Grade 12 students from Thorncliffe Park P.S. and North Toronto C.I., respectively, got to experience the minerals industry first-hand thanks to the Mining Matters Education Program.

Each year at the world's premier mineral exploration and mining convention, while industry professionals look to close deals, Mining Matters seeks to open minds. During this week, Mining Matters hosts two educational events: Junior Day for elementary students and Senior Day for high schoolers. These programs take students on a tour of the Trade Show floor and give them the opportunity to learn from industry professionals as they are given presentations from different companies about the work they do.

On this year's tour, students learned about the modern technologies used to uncover mineral resources, discovered the global nature of the mining industry, marveled at the wealth of career opportunities available and uncovered the industry's social responsibilities to the environment and communities.

In addition to the tour, students participated in a series of hands-on Earth science-themed activities led by Mining Matters staff and representatives from the University of Waterloo Earth Sciences Museum. Younger students focused on the fundamentals of minerals and rocks, learned about optical properties, natural resources in Canada and the properties of metals.

The older students were introduced to the basics of core logging, exploration geology, fluorescence, phosphorescence and physics to analyze how light and its interaction with Earth materials is used in the geosciences and the connection between the physical properties of metallic minerals and manufacturing.





Thank you to our PDAC Education Program Partners:

- Association of Professional Geoscientists of Ontario Education Foundation
- · Boart Longyear
- Carleton University, Department of Earth Sciences
- Geosoft Inc.
- · Laurentian University
- · Noront Resources Ltd.
- · Overburden Drilling Management
- · Phoenix Geophysics Ltd.
- Thunder Bay Community Economic Development Commission
- University of Waterloo Earth Sciences Museum
- · Yukon Geological Survey

#### Expanding Reach Through STEM Education Partnerships

In 2018-2019, we piloted innovative partnerships with Frontier College's Summer Literacy Camp and the University of Alberta's DiscoverE program. These valued collaborations involved customizing our unique hands-on learning activities for their wider audiences.

The DiscoverE program delivers engaging summer camps incorporating math, science and engineering activities to youth across Alberta, British Columbia, Saskatchewan and the Northwest Territories. Camps in 2018 featured five Mining Matters activities for their youngest campers. This year, we provided curriculum and resources for over 30 activities to enhance the Earth science and mining engineering content for kids aged 8 to 10.

Frontier College is a Toronto-based literacy organization that runs Summer Literacy Camps across Canada to

prevent summer learning loss and to provide STEM activities. Mining Matters kits enriched the STEM component of the camps, giving camp counsellors new materials to work with and helping youth practice their reading and writing skills while learning about rocks, minerals, metals, mining and the environment. Our commitment to provide Earth science and minerals education activities and resource kits for Frontier's camps doubled this year, to reach 24 camps located in Indigenous communities.

We are grateful to be expanding both of these important partnerships in 2019-2020. Working together has allowed us to achieve a greater impact than we could have accomplished on our own.





# Photo Credit: Yukon Women In Mining



#### IBM STEM4Girls

Mining Matters was thrilled to reach more females by working with the IBM STEM4GIRLS Teen Tech Club, a hands-on program for middle school girls with the mission to inspire those who want to make a difference in the world and encourage them to consider opportunities provided by STEM careers.

Our instructors, with solid backgrounds in geology and environmental science, acted as career role models and industry ambassadors. The team engaged 25 girls, along with parent volunteers and IBM staff, in exploring careers in the minerals industry, experimenting with the properties of metals, learning the basics of logging core, using smart device microscopes to observe thin sections, completing a simulated geological mapping task and building a headframe from straws, paper and tape to support a load of marbles.



# HIGHLIGHTS

48,000+

Total individuals who enjoyed Earth science activities in schools, camps, conventions, conferences and public events across Canada \*

**26,000**<sup>+</sup>

Students reached through our Teacher Training and School Programs\*

1,800+

Individuals reached through our Indigenous Communities Education and Outreach Programs

1,100+

Students participated in *Rocks* + *Kids* = *Opportunities* delivered to underserved communities in the Greater Toronto Area

- Expanded program delivery in the Kitikmeot and Kivalliq Regions of Nunavut
- Developed new activities focused on robotics, engineering and core logging
- 280 Girl Guides received the Geoscience Aware Challenge badge

\* estimated

\* estimated

\* and Company of the Comp

### Mining Matters Far and Wide!

'I learned... about rocks, such as where they come from and how they were created." —Grade 7 student, Mississaugas of Scugog Island First Nation I would consider a job in science, mineral exploration, mining, and engineering." -Grade 4 student, Alliance Public School I learned that rocks and minerals can be made into things that look, feel, smell, and taste different." -Grade 4 student, Alliance Public School I would absolutely recommend this program to my colleagues. This topic is often 'dry'. This program was fun, interesting, and educational!" -Teacher, Sunset Park Public School Thank you for the fun activities – I understand how the games are related to mining as well as life skills!" -Leader, Sandbar/Minke Lake [I learned about] all the different types of fossils." —Grade 7 student, Mississaugas of Scugog Island First Nation

My favourite activity was the purchasing of equipment during cookie mining, as it allowed the students to make informed decisions."

—Teacher, École élémentaire catholique Saints-Anges

[I learned] how the Earth was formed which was cool!"

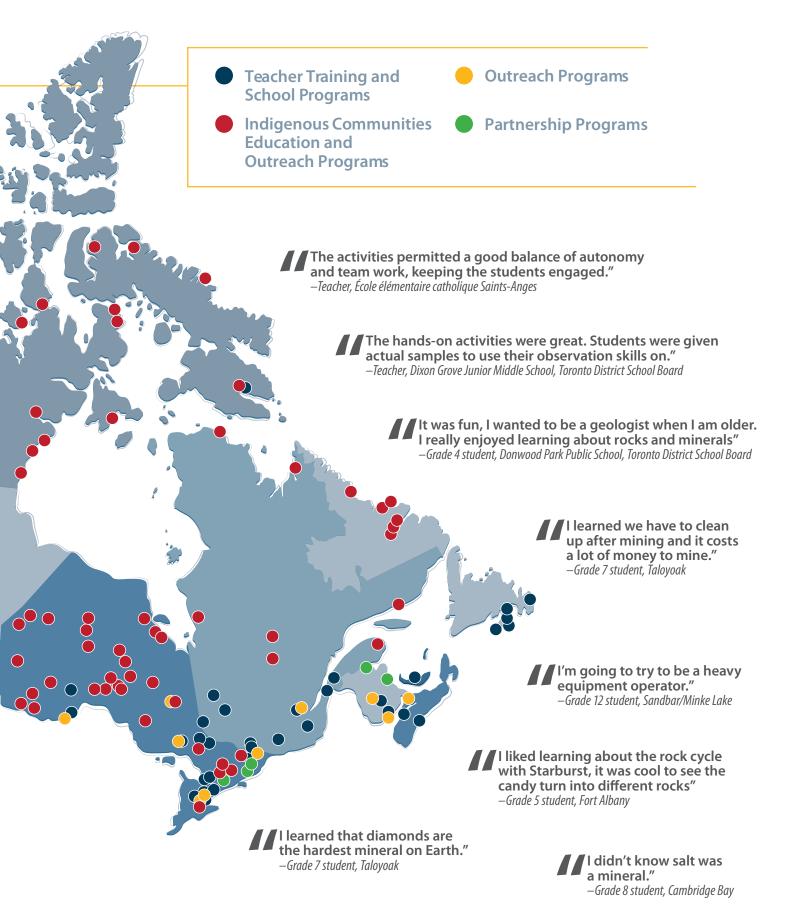
-Grade 12 student, Prince George

I enjoyed the water filtration because it's important to know about our resources."

-Grade 12 student, Whitesand First Nation

The program exceeded [expectations], very hands-on and engaging, complimented the unit perfectly, covered curriculum well."

—Teacher, St. Lawrence Catholic School, Toronto Catholic District School Board



What I learned was that rocks, minerals, metals, and mining is important because if we never had these, many things in this world wouldn't exist."

—Grade 4 student, St. Lawrence Catholic School, Toronto Catholic District School Board

# Thanks to our Contributors!

We could not achieve our goals without you! We are deeply grateful to the corporations, organizations, government bodies and individuals listed on the following pages for their generous support.

Precious Metals (\$100,000+)



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Royal Ontario Museum

Science Literacy Week

Contributions of \$25 or greater, received July 1, 2018 – June 30, 2019. Every effort has been made to ensure the accuracy of this list. If an error or omission has been made, please accept our sincere apologies and contact us to correct.

Registration Number: 88775 6435 RR0001

Yukon Chamber of Mines

Yukon Women in Mining

wintranslation



#### **STEM Camp**

By the year 2025, 95% of jobs will require STEM education and training. STEM is a curriculum that consists of four disciplines: Science, Technology, Engineering and Mathematics. To encourage young people to learn about and develop skills in these areas, STEM Camp is delivered every summer in multiple locations across southern Ontario. Mining Matters partnered with STEM Camp to engage students in hands-on activities and provide a unique learning experience surrounding this year's theme: Minecraft.

Minecraft is a video game where players "mine" the world for valuable resources they then use to build and craft materials for use in the game. Mined resources include iron ore, obsidian, diamonds and emeralds. These are combined with wood or leather to create tools, armour and homes, among other things. Minecraft encourages creativity in its players, but can also be a springboard to generate interest in Earth science, mineral resources and mining.

Inspired by the game, the STEM Camp workshop used activities and demonstrations to compare Minecraft to actual mining processes, illustrating the differences between the video game and real life. Participants were extremely enthusiastic to see, touch, and learn about the rocks and minerals they know from the game they love.

Mining Matters delivered 52 workshops reaching 2,000 Minecraft campers. Through Mining Matters activities, participants created a model of the Earth, identified rocks and minerals, tested the physical characteristics of minerals and made the connection to how they are used in everyday life, explored how diamonds form and enter the crust through kimberlite explosions, discussed the importance of PPE and learned about jobs in the minerals industry.



#### Rocks + Kids = Opportunities

Mining Matters continues to give back to its community. Our Rocks + Kids = Opportunities Program offers free workshops for underserved schools in the Greater Toronto Area. The program was designed to align with the "Rocks, Minerals and Erosion" topic in the Grade 4 science curriculum through hands-on exploration. Students are also given an opportunity to learn about potential careers in Earth science and the minerals industry.

This past year, *Rocks + Kids = Opportunities* programming exceeded last year's reach, delivering 53 workshops to 1,232 students and teachers in priority neighbourhoods from Hamilton to Brampton.

Workshops are tailored to each class; classroom teachers are given a selection of activities to choose from and we modify the activities to match the prior learning of the students. In addition, teachers are left with resources and samples to help keep the excitement and motivation from the interactive activities going throughout the remainder of the unit.

The program continues to receive positive feedback from our partners, including the Toronto District School Board whose partnership is greatly valued and will continue into the 2019-2020 academic year. In addition, Mining Matters would like to thank Kinross Gold for their generous support in making this program possible and we look forward to its continued success.





#### Working with the Outland Youth Employment Program

This summer, Mining Matters partnered with the Outland Youth Employment Program (OYEP) to deliver five *Mining Rocks* Earth Science programs in various camp locations across Canada: Egg Lake, MB; Esker Lakes Provincial Park, ON; Gwillim Lake, BC; Lubicon Lake, AB and Sandbar Provincial Park, ON.

The OYEP offers a six-week work study that provides land-based education, training and work opportunities for Indigenous youth. They use natural resources management as a platform to develop transferable life and work skills. The program celebrated its 20<sup>th</sup> anniversary in 2019.

Mining Matters participated in this program by facilitating activities and leading youth in conversations about careers. Our *Mining Rocks* program engaged students in informative hands-on learning activities that taught participants about the importance of rocks, minerals, metals and mining. Through engineering challenges that had youth working in groups to build the strongest headframe or a working conveyor belt, participants learned to work as a team and problem solve. Students also took part in meaningful discussions about their values as they were introduced to career opportunities available in the industry.

# Reaching Out in Québec

Mining Matters offers workshops and resources in both official languages. We delivered several programs in French last year engaging hundreds of people from the francophone community.

Kasey Stone, Bilingual Programs Coordinator, attended the 2018 Québec Mines + Énergie Découverte held at the Québec City Convention Center. The event consisted of workshops and networking activities for professionals in the mining and energy development industries, as well as activities for young people and the public.

Mining Matters participated in the education component of the event, which aimed to encourage elementary and high school students and their teachers to discover the importance of Earth science, mining and energy in their everyday lives through practical scientific experiments. They also learned about career opportunities in these areas. Overall, 1,100 francophone students participated in the various hands-on activities.

Mining Matters was also present at the Salon de l'apprentissage held in Montreal, QC in the spring. This event showcases a vast array of educational resources, with many exhibitors selling teaching materials.

Parents, teachers and children participated in a variety of hands-on activities at the Mining Matters booth, including Product Matching and Reclamation Matching. Teachers also had the opportunity to explore our classroom kits and book teacher workshops.





Photo Credit: Caroline Perron

#### Mining Matters Engages the Public

In the Spring, we traveled to Fredericton, NB to participate in the Canada-Wide Science Fair, an event that celebrates some of the brightest minds in the nation. As we engaged these young scientists in activities teaching them about how the Mohs scale of hardness is used to identify different minerals, they shared with us their projects that are meant to develop a solution to a real-world problem. Thousands of finalists were present and we were excited to see so many students passionate about STEM.

Later in the Summer, Mining Matters returned to the east coast to the small town of Parrsboro, NS for the province's annual Gem and Mineral Show. Here

we interacted with 600 visitors at our booth. We showed them mineral samples and they were asked to figure out which object on the table each mineral is used to make. Children and adults alike were surprised to learn that mica is used in makeup. There was a big buzz as people got excited to use the conductivity tester to see which minerals conduct electricity.

We also made appearances at gem and mineral shows in Calgary, Ancaster, Bancroft, Toronto and Waterloo.



#### Mineral Resources and Mining Education Tours

Every summer, Mining Matters offers Mineral Resources and Mining Education Tours in partnership with the Canadian Ecology Centre, the Ontario Mining Association and the CIM. The tours provide educators with a unique opportunity to learn about the minerals industry first-hand as they take a look inside an operating mine. Through this experience, teachers come to understand the complexity of a mining operation and learn about technology use, the responsibilities to the environment and the attention to health and safety.

2019 marked another successful program that saw the delivery of three tours.

The Life in a Mining Camp Tour was delivered at North American Palladium. The tour was requested by the Ontario Youth Apprentice Program (OYAP) of the Durham District School Board as a follow-up to last year's Lac des lles Mine Tour. Twenty OYAP coordinators, Specialist High Skills Major Programs representatives, teachers and guidance counselors participated in the tour. At Lac des lles, delegates participated in a management meeting and visited the

underground and surface operation, the core shack and the mill. The Exploration Department delivered a presentation that focused on the mineral resource development cycle and current exploration and development projects underway at the mine. Participants also visited the Amethyst Mine Panorama and Ouimet Canyon Provincial Park.



The Mine Life Cycle and Foundations Tour engaged elementary and secondary educators, corporate educators and trainers and representatives from the CIM from across Ontario and Québec. The opening evening program included a plenary address by Roy Slack, CIM President and Director for Cementation Americas, as well as an "Earth Science and Mining 101" presentation. Site visits included a tour of Glencore's Nickel Rim South Mine, a field tour of local rock outcrops (including Sudbury Breccia and Shatter Cones), the petrology laboratory at Laurentian University, Harquail School of Earth Sciences and the Ontario Geological Survey Geoscience Laboratories. Dr. Peter Beckett and Dr. Graeme Spiers facilitated a reclamation themed site visit to discuss the historical context of Sudbury mining and smelting and the theory and practice involved in the regreening of the region. The tour concluded with a geologically-themed canoe trip down the historic Mattawa River.

The Foundations Tour opened with a three-hour teacher workshop that focused on foundational principles of Earth science, mineral resources, sustainability and environment. Site visits to mine service and supply companies in North Bay, including Redpath allowed teachers to learn about equipment and contracting. Representatives from Knight Piésold discussed environmental consulting services and environmental impact assessments. The final site visit took place at Crystal Cave in South River, an earth materials exhibit and museum.



#### Internship Highlight: Mark Porasz

Mark started with Mining Matters in January 2019. Over the past ten months, he has traveled to more than 15 cities, towns and communities and delivered dozens of programs. He shares about his experience working at Mining Matters:

Mining Matters is an amazing place to work and grow in a professional setting. Respect is something that is evident in the values of the organization and the people that work here. This internship has given me the opportunity to learn more about First Nation and Inuit communities, and their relationship with the minerals industry in Canada. I have learned a lot through unique training opportunities and working directly with communities.

In addition, I have had so many unique experiences, from participating in drum circles in remote First Nation communities to seeing wild horses in northern Alberta. I feel very privileged to have had the opportunity to work here and feel that this position is a good stepping stone into a career in sustainability or any position in the minerals industry."

#### Co-op and Summer Students

Mark is not the only one who has enjoyed his experience at Mining Matters. We had four students join our team this summer. Here's what they had to say:

"I'm so thankful to have had this opportunity to continue my passion for teaching youth, with the added excitement of traveling across Canada to deliver programs about geoscience and the minerals industry. I have learned so much this term working with Mining Matters, and I am looking forward to applying my new knowledge and experiences to my future studies and educational positions."

-Jennifer Rhynas, Co-op Student, University of Waterloo

"Working at Mining Matters has been a truly rewarding experience, full of opportunities unique to the organization. I've explored parts of Canada's far north and connected with students in southern Ontario, all while sharing my passion for Earth science with the next generation in a professional and supportive environment. Mining Matters is a wonderful organization and I couldn't have asked for a better Co-op experience!"

-Samantha Kobak, Co-op Student, Western University

"Working with Mining Matters this summer has been a privilege. I cannot imagine a more unique and meaningful work experience. Through Mining Matters, I was able to improve my communication skills and reach a large audience of engaged students. I participated in many programs in Ontario's Ring of Fire region where I got to work directly with First Nation community members. I got to travel on many small aircrafts to unique regions of Canada, all to provide students and teachers with educational resources in my favourite subject — Earth science. I am so lucky Mining Matters took me on as an Intern; it was a summer I will not soon forget."

−Zoe Evans, University of Toronto



"Working for Mining Matters has been a great experience. I've travelled around Canada, from northern Alberta to Winnipeg and throughout Ontario, going to places I have never been before. Travelling allowed me to meet new people and grow as a person, pushing myself into new situations and experiences that I wouldn't have had otherwise. I contributed to the education of others, teaching about Earth science and mining, and in the process grew in my own knowledge about science and the industry. It has been an amazing summer. I contributed to the education of people of different ages and helped them learn more about their own relationship and possible opportunities with science and the minerals industry. Sparking interest and helping young people make connections with the world around them is a fun and fulfilling experience. It will be a summer I will never forget."

-Dalton DeMers, University of Toronto

#### Science Literacy Week

We light up when we see others getting excited about science. During the third week of September, Mining Matters took part in Science Literacy Week, a week-long celebration of science research in Canada. The national movement is organized to engage others in the subject in exhilarating ways as libraries, museums, universities and organizations come together to put on demonstrations and facilitate activities.

Mining Matters partnered with libraries in St. John's, NL; Brandon, MB and Toronto, ON to deliver "What's WHERE and Why Care" workshops that had youth from ages 9 to 14 working collaboratively to identify properties of Earth science materials and understand where and how these resources form. These workshops aimed to enhance skills in science literacy, numeracy, teamwork, technology use and problem solving for youth. Topics included: Metallic and Non-Metallic Minerals, Renewable and Non-Renewable Resources, Minerals of Canada, Provincial Geology, Product Matching, Amethyst Jewellery Making and Careers with Explore for More.





#### groundWORK 2020

The 2019-2020 edition of the groundWORK newsletter provides educators with a wealth of information. groundWORK is an annual publication designed to keep teachers engaged and motived in the delivery of Earth science and mineral resources year after year.

This year's edition features the chemistry behind the mineral tourmaline and its uses, electric vehicles and how they are changing the game in the minerals industry and the applications of 3D printing in the mining sector. Teachers can also get neat ideas for field trips with their classes, learn about the UN Sustainable

Development Goals and elementary teachers can follow along with the Starburst™ Rock Cycle activity with their students while the "Activity – Concern – Solution" exercise is featured for secondary students.

Upcoming professional learning programs are highlighted, including the 2020 PDAC Convention Education Program and the Mineral Resources and Mining Education Tours. As well, new educational resources are shared and the WHERE Challenge and Field Trip Subsidy Program are showcased.

Email info@miningmatters.ca to request a copy of groundWORK 2019-2020.

## Building Mineral Literacy through STEM Education

As we move forward from our 25<sup>th</sup> anniversary, we see this as an opportunity to better communicate the mission of Mining Matters to educators, students and the public. This will be achieved through the new tagline: Building Mineral Literacy through STEM Education. STEM education is a blended approach that encourages hand-on experience, exploration, observation, inquiry, place-based learning and a focus on career choices. It give students the opportunity to gain and apply relevant, "real world" knowledge in the classroom. The new Mining Matters tagline conveys our cross-curricular approach to developing knowledge and awareness of Earth science, the minerals industry and their roles in

society by creating STEM opportunities that inspire students to use and gain knowledge in exciting ways.

#### Our WHERE Challenge is back for its 12th year!

The WHERE Challenge is a national contest endorsed by the Canadian Earth sciences community that motivates students aged 9 to 14 to explore the fields in which geoscientists work: Water, Hazards, Energy, Resources and the Environment. Students discover and creatively tell a story about why non-renewable resources are so important in everyday life.

The contest ignites students' curiosity about the origins of everyday items and encourages them to explore the mining, energy and environmental sectors for possible career opportunities. The WHERE Challenge is a great way for students to combine classroom learning with real world relevance, curiosity with practical research and creative ideas with production technology.

Entries are received from across Canada and a volunteer judging panel made up of industry and Earth science partners selects winners in each of the three categories of projects — Multimedia, Graphic Art and Literary — awarding more than \$10,000 in cash prizes.

Last year's WHERE Challenge launched September 18, 2018 and ran until March 7, 2019. The winners were announced on May 13, 2019 and included entries that discussed the uses of graphite and aluminum in pencils and the process of extracting minerals for silicon, aluminum, iron, chromium, nickel, molybdenum and carbon to make stainless steel for watches.

The 2019-2020 contest is now underway. This contest is successful with the enthusiastic and continuous support of the industry. Mining Matters requires industry members to join our judging panel. Please visit our new WHERE Challenge Judges' Registration form at MiningMatters.ca to register.

Other ways your support can make a difference in the contest:



- Share information about the contest with colleagues, family, friends and your social media network.
  - Help a local educator or youth leader with the Challenge in their classroom or club.
    - Encourage youth to participate.
      - Contact Mining Matters to receive resources so you can deliver a WHERE Challenge workshop of your own at your local school or library.

For more information about the contest and to view some of the past winning entries, visit earthsciencescanada.com/where.



#### Mining Matters Hockey Tournament

Every year on the Saturday leading up to the PDAC Convention, Mining Matters hosts a hockey tournament at Scotiabank Pond in Toronto. This fun day brings together members and stakeholders in the minerals industry for fast-paced friendly competition while raising funds for mineral resources education.

This year, 14 teams participated and for the first time ever, a Fossils Division was created for players over the age of 40. Bonterra Resources took home the coveted Caracle Cup after five eventful games in the regular division, while Pilot Law LLP were the reigning champions of the Fossils.

Mining Matters thanks all of this year's teams and sponsors for their participation, generosity and support of our education and outreach programs. The next tournament will take place on Saturday, February 29, 2020. To register, please visit miningmatters.ca/industry/hockey-tournament.





# Mining Matters *Diamond in the Rough Golf Classic* and *Rock Cycle Ride for Minerals Education*



The 13<sup>th</sup> annual Mining Matters *Diamond in the Rough Golf Classic* took place on June 13. Despite the rainy weather, more than 100 golfers completed the 18-hole course at Cedar Brae Golf Club while vying for their chance to win a trip to Jamaica and \$10,000 cash.

In conjunction with our Golf Tournament was the 8<sup>th</sup> annual *Rock Cycle Ride for Minerals Education*. Eight cyclists embarked on an 80-km journey that took them through the Rouge Valley and neighbouring areas. Thank you to our Presenting Sponsor, Roscoe Postle and Associates Inc. for their continued support of the ride.

Pictures from the day are available on our website courtesy of Hark Nijjar Photography.

Mining Matters would like to thank IBK Capital Corp., our Diamond Sponsor, and all our other sponsors, donors, supporters and volunteers for helping to make this day a success. Next year's tournament and *Ride* will take place on Thursday, June 11, 2020.



#### KPMG Ping-Pong Tournament

KPMG hosted a Ping-Pong Tournament in the Spring through which they raised funds for Mining Matters programs. Several corporations came together and donated more than \$10,000 to our educational programs that teach the fundamentals of rocks, minerals, metals and mining. These funds will help us continue working with youth and in turn enable them to make informed choices in the future regarding the minerals industry. This generous support is much appreciated by everyone at Mining Matters.

A big thank you to Lee Hodgkinson, Partner and National Industry Leader of KPMG's Canadian Mining Practice. Lee is a Director of Mining Matters and serves as Board Treasurer.

For more information about next year's events, please contact Sarah Hahn at tournaments@miningmatters.ca.



#### How to Donate

Mining Matters is grateful for the contributions of many loyal supporters that have made our goals a reality. Your donation does make a difference! It provides the foundation for our important work and is critical to our ongoing vision of bringing Earth science to life.

As a charitable organization, Mining Matters program development and delivery are made possible only through the financial sponsorship, donations and in-kind contributions from the mineral and aggregate industries, individuals, foundations, corporations and government.

We are asking for your support, so that we may continue to provide current information about the importance of rocks, minerals, metals and mining in everyday life and the diverse career opportunities available in the minerals industry to students, educators and the public.

A charitable receipt will be issued for contributions \$25 and greater. For more information or to donate, please contact mfraser@miningmatters.ca or call 416-863-6463 ext. 334.

#### **Donating Shares**

Donating shares to Mining Matters may be of interest due to the considerable tax benefits that can be realized. The elimination of capital gains on stocks, bonds and mutual funds means that a contribution results in a tax receipt equal to the fair market value of your gift. Rather than being subject to tax on 50% of the gains for shares sold during your lifetime, accrued capital gains on donated shares are exempt from taxes

#### **Donating Cash**

Cash donations to Mining Matters are always welcome and are eligible for the Charitable Donation Tax Credit (CDTC). In addition, for individuals who have not donated previously to charities, there is the First Time Donor's Super Credit (FDSC). This applies to cash donations and not contributing shares. There are also provincial tax credits, which vary across provinces.

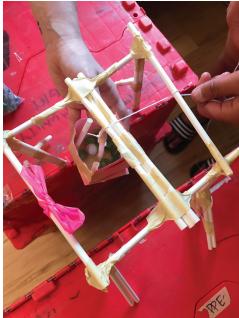
To learn more, please contact Durham Sims, Mining Matters Investment Advisor at RBC Dominion Securities at 416-842-3086, 800-561-4468 or durham.sims@rbc.com. Mr. Sims serves in a volunteer capacity with Mining Matters.

#### **Planned Giving**

Mining Matters accepts planned gifts. These gifts enable individuals to make larger donations than they could make from traditional methods.

- Bequests and Wills: leave a piece of property, securities, cash or percentage of your estate.
- Charitable Remainder Trust: irrevocably make a gift through a trust agreement.
- Endowment Fund: provides longterm support. The principal remains invested; only the income is spent.
- Life Insurance: designate Mining Matters as the beneficiary on a new or
  existing policy or transfer the ownership of your policy to Mining Matters
  directly with a pledge to pay the premiums each year.
- RRSPs/RRIFs: name Mining Matters as the direct beneficiary of your RRSP/RRIF assets.
- · Securities: donate bonds, mutual funds, stocks or other types of securities.

When considering a Planned Gift, Mining Matters recommends that you contact your professional advisor so that your legacy gift is tailored to your circumstances.







#### **Exploring Together: Field** Trip Subsidy Program

Every year Mining Matters offers a Field Trip Subsidy program to help teachers take their students on amazing field trips to stone, sand and gravel, mining and geoscience venues that they might not otherwise have been able to go on. The subsidy helps to cover entry fees and transportation costs to these locations.

Field trips bring Earth science to life and help students make connections between what they are learning in class and the real world. They get to see where some of the things they use every day come from and become aware of the wide variety of career opportunities.

Last year Mining Matters was able to support 23 schools across the country with the program. Some of these trips included visits to museums, science centres, quarries, conservation areas and tours of local areas containing a rich geology. 978 students and 97 teachers and adult chaperones benefitted from the subsidy program last year alone.

Mining Matters would like to continue to help support teachers and students access these fantastic trips, and to increase the number of students provided with hands-on, real life exposure to the world of rocks, minerals, metals, mining and geoscience.

After a trip to the University of Waterloo Earth Science Museum, Aimee Partlow, a grade 3/4 teacher at Aberfoyle Public School said, "The children were able to see and do things I cannot provide in the classroom environment. They were able to see museum quality specimens, uncover fossil fish, pan for gold and visit a mining tunnel. For many it was the highlight of the unit, and increased their enthusiasm about mining and minerals."

Thank you to last year's sponsors for making this program a success. We are in need of more support for this year's Field Trip Subsidy Program. If you would like to be a sponsor, please contact mfraser@miningmatters.ca.

# Save Mining Mat the February 29 **PDAC Convention**March 1-4

**Mining Matters Hockey Tournament** 

**Diamond in the Rough Golf Classic** June 11

**Rock Cycle Ride for Minerals Education** June 11







# Who We Are

Mining Matters is a charitable organization dedicated to educating young people to develop knowledge and awareness of Earth sciences, the minerals industry and their roles in society. The organization provides current information about rocks, minerals, metals, mining and the diverse career opportunities available in the minerals industry. Mining Matters offers exceptional educational resources that meet provincial curriculum expectations, created by educators and Earth science experts.

Mining Matters has reached an estimated 750,000 teachers, students and members of the public since inception in 1994.

Mining Matters is governed by a volunteer Board of Directors.

#### Our three core educational programs are:

#### **Teacher Training and School Programs**

Bringing Earth science to life for students and teachers in classrooms across Canada

#### **Indigenous Communities Education and Outreach Programs**

Opening a world of opportunities to youth in Indigenous communities

#### **Outreach Programs**

Developing an awareness of the mining industry and sparking interest in Earth science learning in people of all ages

#### **Board of Directors and Officers**

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John Heslop, Chair and Director

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