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OUTREACH



What I learned in Attawapiskat: An Earth Science Outreach Adventure

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Earth Science Outreach in Canada takes many forms. Great programs are delivered by a multitude of individuals and organizations in a multitude of ways. And whether the reaching out is visiting your child's Grade 4 class to talk about minerals, or putting together a huge community event like Earth Sciences for Society exhibitions, these programs are driven by the recognition that youth, teachers and the public need to become more aware of complex Earth Systems, how they work and why we all need to care.

It has been noted by our international friends that what we manage to do in Canada without specific government involvement and funding is pretty amazing. This unique grass-roots community of passionate, committed people is held together by a thread of common mission, and the low-tech but immensely effective work

of the Canadian Geoscience Education Network (CGEN). Communicating via email, members are apprised of upcoming events, opportunities and resources and kept connected with each other. Industry's growing understanding of their own role in supporting education and outreach efforts adds dimension to this collective, and has proven extremely valuable; industry partnerships will be increasingly more important to future projects.

In my own experience, Earth Science Outreach is never more effective than when these diverse components are brought together for larger projects. Sometimes born of crazy confluence of chance and adversity, these collaborations of folks from all areas of geoscience create some great learning opportunities for everyone involved.

My job as Outreach Coordinator for the Department of Earth Sciences at Carleton University puts me at the hub of an active Outreach program that involves staff, faculty and students engaging elementary and high school students in their classrooms, bringing students to visit us, providing workshops for teachers, interacting with community groups and organizing educational programs for the general public, such as our local event, Explore Geoheritage Day. I consider the success of our outreach projects to be attributable to the collective efforts of all of our volunteers, and seek to involve other members of the local geoscience community, local businesses and industry, and municipal and provincial partners, where possible.

This article describes an excursion to the remote First Nation community of Attawapiskat, northern Ontario, brought about by a collective effort of individuals and organizations,

and which epitomizes the tremendous value of such collaborations.

The community of Attawapiskat First Nation is located along the mouth of the Attawapiskat River (Fig. 1), on the northwest shore of James Bay in Ontario. You may recognize the name as it has had its share of attention this past winter due to housing shortages. As well, DeBeers Canada operates its Victor diamond mine 90 kilometres west of the community.



Figure 1. Attawapiskat – view from the plane of the community on the northwest shore of James Bay, Ontario..

In the summer of 2011, Attawapiskat youth were scheduled to participate in a program of Aboriginal Summer Youth Camps being run by Mining Matters, in Northern Ontario and Manitoba First Nations communi-



Figure 2. View of the portables at J.R. Nakogee Elementary School.



Figure 3. Elementary teachers' workshop – trying activities and exercises.

ties. Mining Matters, a program of the Prospectors and Developers Association of Canada, is a charitable organization that provides teachers and students with the opportunity to learn about minerals and mining. Manager of Aboriginal Education and Outreach Programs, Barb Green Parker, had intended to bring the camp to Attawapiskat in late September, but scheduling issues delayed the program until November and then into January 2012.

Turning a summer outdoor camp for a group of youth into a whole community winter in-school project created its own set of challenges, not the least of which was building a team of sufficient people to deliver it. DeBeers Canada, an original sponsor of the summer youth camps, signed on to fully fund the trip. The rest of the team included Mining Matters Educator Janice Williams and Facilitator Jenni Piette, and when even more hands were needed, I was contacted to come along. As well, Stella Heenan, who has created teaching resources for Mining Matters and a comprehensive set of on-line workshop activities for EdGEO (2010), was engaged to help create new Primary Level activities so that the Grades 1 to 3 students could take part in the event.

Team members were each given the job of interacting with a school level, Primary, Elementary, Junior and Senior, and presented activities to their assigned group during the 3 days of workshops, reaching a total of

296 kids (Fig. 2). The goal for all presentations was to encourage students to think about the limited extent of earth resources, where they come from and how we use them. The method was to guide them through experimentation and exploration. To accomplish this task, each group was approached with age appropriate, curriculum-based activities. Grades 1 to 3 students explored why things float or sink, investigated rock hardness, made sand art and played with simple gears. Grades 4 to 6 students matched everyday products to their mineral components, explored mineral properties and learned about the rock cycle (Fig. 3). Grades 7 and 8 students investigated the Earth's structure, diamond formation and where diamonds are found within the Earth. Senior level students learned about corporate social responsibility while 'mining' chocolate chip cookies. Sixty-two teachers and teaching assistants were also provided with some great resources and instruction during two after-school workshops.

Reviews from students and teachers alike were very positive; all enjoyed the innovative, hands-on nature of the activities and experiments which allowed students to be scientists exploring the concepts for themselves. Two members of the DeBeers staff, Brad Wood, who discovered kimberlite in the area, and Brian Kilbride, Manager of Pit Operations at the Victor mine visited each of the classrooms, adding a great component to the presentations and building a basis for future outreach collabora-

tions.

An evening event (Fig. 4) allowed us to engage with the whole community, and included games and activities for the kids, a buffet dinner provided by DeBeers and presentations to local graduates of their Long Haul Truck training program. Puzzles, poster drawing, mineral ID activities and soapstone carving allowed the children and youth to show their families what they were learning in the classroom.

Preparing and executing this project was challenging and might have been daunting but for the good nature and positive outlook of the various members of the team. The challenges included just getting the teaching materials to the remote location. Travelling with rocks is a necessity for Earth Science Outreach, and absolutely key to being able to engage students and teachers; you need to bring the goods! Delivering lesson plans and activities that are experiential and engaging for all school levels requires a high level of organization mixed with an equal measure of flexibility and imagination, all of which was demonstrated by this great team. I was able to test-drive the new Primary lessons and everyone loved the busy, messy, happy classrooms. Organizing for workshop delivery to 20 different locations was also new for us, but absolutely doable, and in the end made each session completely unique, allowing all of the kids to experience the activities in their own space. Welcoming us into their classrooms, we were able to help teachers



Figure 4. Barb Green Parker of Mining Matters, Brad Wood of De Beers, and kids carving soapstone at Community Dinner.

and students to identify their own rock and mineral collections and they were eager to show us what they were learning.

The remoteness of the location required an extended visit (Fig. 5), and this is precisely why outreach to these communities is necessary. This aspect of the trip was greatly appreciated by all of us, and allowed us to fully engage with the community, learn from them, and made for some very special interactions with community members and other visitors including members of the Press, members of Parliament and DeBeers employees. We were stopped on several occasions



Figure 5. Beth and Michelaine Okinaw, proprietor of the White Wolf Inn.

by parents who asked about the lessons their kids were learning, wondering about diamonds, how they came to be here and how they could be different than graphite in pencils and still be the same element. It was gratifying to see that the kids were taking the experiences home, and that parents felt comfortable talking to us.

As facilitators and educators, we were unanimous in our enjoyment of our time in Attawapiskat. According to team leader Barb Green Parker, "The experience was a great one - watching the learning and enjoyment that occurred during the community night, sharing the students' excitement of understanding their future potential, engaging with the teachers during workshops, and seeing the northern lights all made it an incredibly worthwhile experience."

For me, this was the first time I had encountered such a thoughtful, quietly introspective manner of communication, so much different than the rapid give and take of debate I am used to, and found that there is much to be gained by slowing down and really listening to other views and perspectives. Having time and opportunity to speak with First Nations community members allowed me to learn a little about balance and collective responsibility from a society that has been looking at earth resources from the perspective of husbandry and sound management long before modern mining began in Canada. This traditional knowledge and perspective is one that needs more attention in our outreach education efforts, indeed in our global view, and I was honoured to be able to engage even briefly in this dialogue.

In all, this project, although unique to the situation, the community and the moment, underscores what we can do when we put our minds to the task as a collective, and when opportu-

nity to do something special presents itself. Despite the sometimes huge effort required, these projects allow us a chance to think outside our usual delivery methods, target audiences and presentation styles and let us imagine what could be if we try something new. Partnering with Industry provides educators with the funding they need to deliver programs, and allows industry a chance to bring their perspective and voice to that education.

I thank the Mining Matters crew for the work they do, for thinking big, and for getting to my name on their list of folks to call upon, giving me the chance to participate in this great adventure. A big thank you to Stella for her excellent work creating the new Primary Level activities! I thank DeBeers for seeing the benefit of supporting this huge endeavour and providing the funding and support. And I also thank the Department of Earth Sciences at Carleton University for allowing me the time away from my primary duties.

I would encourage all members of the Canadian Earth Science Outreach community to continue to collaborate in new and exciting ways. I also encourage industry, academia, government and private organizations to find ways to participate. All stand to gain from these endeavours and all of these perspectives add dimension to the conversation, as we work together to create a scientifically literate society that understands how Earth processes affect their everyday lives and has the ability to think critically about global issues. Let us not hesitate to think about what we could do if only we had the time, people, resources and funding at our disposal; I would like to suggest that indeed all of the components are out there - sometimes all we need to do is dare to imagine... and then ask!

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