Mssic—Making connections

Summer 2021 Volume 4, Issue 2

SPECIAL POINTS OF INTEREST:

- MSSIC's support of expanded virtual science fair program a huge success
- Maker Faire results are in… NL projects going to Atlantics
- National Geographic Certification program a great professional learning opportunity

INSIDE THIS ISSUE:

MESSAGE FROM THE PRESIDENT

Well we made it through another year with Covid-19: one with no shortage of challenges and indeed stresses. It certainly gave new meaning to words such as pivot, hybrid and unprecedented. Our members are professionals who care deeply for their students and so met those many challenges head on. Congratulations to them and indeed all those who work in our schools to maintain a safe and caring environment.

The Math-Science Special Interest Council (MSSIC) is your council. Please feel free at anytime to contact us with questions, suggestions, or concerns. As your SIC we play two main roles. The first it to support and advocate for adequate Professional Learning opportunities. The second is to advocate for you when new policies, curriculum, and procedures are planned or implemented.

MSSIC members provided a number of different PL opportunities this past academic year. In December and again in February, Pat Wells, a very active member of our board, offered 2 sessions on the use of Lab Pro for activities in high school sciences. Following on the heels of the 2 successful virtual science fairs in 2020, members of the MSSIC were again involved in organizing 2 virtual competitions in April, 2021. The 2 fairs resulted in the selection of 12 students to compete at the first virtual Canada Wide Science Fair in May. More information on these fairs can be found below (page 4). Furthermore, a subcommittee of our board led by MSSIC secretary Jane Lloyd, and including Annette Warren and Elaina Fennell, teamed up with John Barron and Tonya Bull-Kelly of Brilliant Labs to organize a Maker Faire in May. This event, the first of its kind for the province, involved the participation of more than 700 students, from grades K to 9. With such great interest we anticipate this will become an annual event! (More on this event on page 7) The MSSIC is thrilled to facilitate and support activities such as science and maker fairs as they enable Deep Learning opportunities for our students at all levels.

While the school year is winding down, some of our members are in the planning stages of more PL for the summer months. I will be presenting at the upcoming ULearn Summer Institute in August, sponsored by the NLESD. This session is for anyone interested in including science fair projects in their high school science courses.

(continued page 2)

PRESIDENT'S MESSAGE (CONTINUED)

Pat Wells recently worked with CDLI (Centre for Distance Learning and Innovation) science teachers Kim Furey and Matthew Ball to develop lab activities using Vernier for data collection – LabPro, LabQuest or LabQuest 2. Pat will be hosting a session on Vernier for high school science courses at the ULearn Summer institute. More information on this summer institute can be found here: https://sites.google.com/nlesd.ca/plseries-sept2020/home. MSSIC treasurer, Karen Yetman, is organizing an Ocean-STEM Summer institute which will take place in Terra Nova National Park from August 17th to 20th (see page 3). A number of our board members will also be meeting during the summer months to plan more PL opportunities for the new academic year, so stay tuned. Wishing everyone a well-deserved summer break and looking forward to seeing you in the fall. Stay safe!

Sincerely,

Yvonne

2020 BLUNDON MATHEMATICS WINNER

Daniele Gosse of Gonzaga High School is 2020 Blundon Contest Winner.

Daniel Gosse from Gonzaga High School was the winner of the 2020 MUN Mathematics Department Blundon Contest. The winner of the Blundon Contest is presented with the Blundon Shield, to be displayed at the student's school as well as an individual plaque. The shield and plaque are sponsored by the Math Science SIC. These are usually presented at an awards banquet each year at the end of the Blundon seminar in May. This annual (since 1982) three-day math camp is held for senior high school students from Newfoundland and Labrador who are interested in mathematics and demonstrate consistently good performance in mathematics competitions. Participation in the math camp is by invitation only based on the results of preceding Blundon, COMC, Euclid, Fermat, and Cayley contests. During the seminar the students attend two one-hour talks given by professors from MUN on various mathematical topics and applications in science and engineering. There are several problem solving sessions as well as other activities such as Mathletics and Papers Chase. Winners of the various competitions are presented with prizes at the awards banquet. The Blundon Seminar is named for Professor W.J. Blundon who was the first head of the Department of Mathematics and Statistics at MUN, and an avid problem solver. Daniel graduated from Gonzaga n June 2020 but was only recently presented with his award due to Covid-19 restrictions and the unexpected move to online learning last spring. Daniel is currently studying math at Waterloo University in Ontario.

2021 OCEAN-STEM INSTITUTE IN EXPERIENTIAL LEARNING

Twenty educators from various schools across the province (grade levels 4-12) are preparing for an exciting opportunity to immerse themselves in the natural beauty of Newman Sound in Terra Nova National Park, while acquiring practical new teaching tools and strategies in experiential, place-based learning.

These educators will be participating in the 2021 Ocean-STEM Institute in Experiential Learning and will focus on getting teachers familiar with the Coastal Explorers Fieldwork Program, an experiential learning program developed by the Oceans Learning Partnership in collaboration with scientists and researchers from Fisheries and Oceans Canada and Parks Canada. This unique, NL-specific coastal ecosystem monitoring program is an ideal vehicle for motivating your students to explore the marine environment in the areas where they live, while introducing them to basic scientific fieldwork and developing practical (and transferable) data collection and data visualization skills. The Ocean-STEM Institute offers three days of inspiring, informative and fun workshops, presentations and discussions. Participants will walk away with relevant, ready-to-use ideas and activities to implement with their students during the 2021-2022 school year.

OCEAN-STEM TEACHER INSTITUTE

Ocean-STEM Institute in Experiential Learning
Newman Sound | Terra Nova National Park | August 18-20, 2021

Highlights of the Ocean-STEM Institute in Experiential Learning include:

- Connecting and collaborating with colleagues in the beautiful natural environment of Newman Sound in Terra Nova National Park.
- Working with ocean science researchers and conservation specialists in the field and becoming part of their citizen science team.
- Gaining hands-on experience using aerial and underwater drone technology.
- Visiting the abandoned community of Minchins Cove and exploring its fascinating underwater maritime heritage.
- Expanding participants' repertoire of experiential learning approaches and activities.

The Ocean-STEM Teacher Institute is a joint programming initiative of Oceans Learning Partnership, the NL English School District, and Parks Canada. The Coastal Explorers Fieldwork Program and #WeAreCoastal collaboration site for citizen science projects are flagship programs of the Oceans Learning Partnership Inc. Teachers who participate in the 2021 Ocean-STEM Institute will be eligible to earn a special, newly created designation, Ocean-STEM Educator, which will be awarded to participating teachers in recognition of their leadership at a special ceremony during World Oceans Day in June 2022. Ocean-STEM Educators become part of a virtual community of like-minded educators for sharing of best practices and peer learning support.

Oceans Learning Partnership

Newfoundland & Labrador English School District

Parks Canada Parcs Canada

2021 VIRTUAL SCIENCE FAIRS: GREAT EXPERIENCES FOR ALL

For the first time since 2013, Science Team NL included students from outside of Eastern Newfoundland. This year, through the efforts of MSSIC president, Yvonne Dawe, Youth Science Canada officially recognized a second region for our province: the Labrador, Western and Central Newfoundland region.

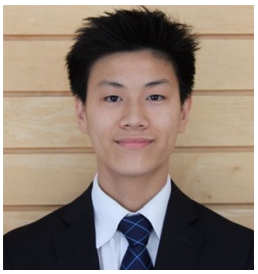
The 6 students selected from a virtual science fair on April 17 included Grace Tuglavina from Lake Melville School in North West River, Amy Gillard from St. Stephen's All Grade in Rencontre East as well as Hannah Babstock, Miya Burden, Cassie Saunders, and Ethan Woodfine, all students at Holy Cross School Complex in Eastport. They joined Holy Heart students Livi Allen, John Hiscock and Nicholas Qiu, Holy Spirit High student Caleb Tibbs as well as Orpa Hawlader and Dipayan Sutra Dhar from MacDonald Drive Junior High. These students were selected from a second virtual science fair on April 24. This fair was held in lieu of the 2021 Husky Energy Eastern Newfoundland Science and Technology Fair.

On a recent visit to St. John's to attend a volleyball camp hosted by the NL Canada Games organization, Grace Tuglavina had the opportunity to meet her CDLI chemistry teacher and MSSIC president Y. Dawe and receive her "Best in Fair" prize and gold medal in person. Reflecting on her science fair experience Grace said "it's not about what you have achieved, more so of what you've learned and how far you've come since the beginning". Grace hopes to continue science fair participation in the future.

The 2021 Canada Wide Science Fair went online this year as well. This national competition, hosted by Carlton University in Ottawa in May, included over 300 projects from junior and senior high students from across the country, including all provinces and territories. Science team NL members Livi Allen, Orpa Hawlader and Nicholas Qiu each won a bronze medal.

Livi Allen

Orpr Hawlader



Nicholas Qiu

2021 VIRTUAL SCIENCE FAIRS (CONTINUED)

The 12 students of the 2021 Science Team NL, as well as all students who took on the challenge of completing a science project this year, are to be commended for their hard work and perseverance in these challenging times. More information about the team and the 2 regional fairs can be found at **enstf.ca**

Students who complete a science fair project typically find the experience a positive one, and many students are inspired to continue their work throughout high school. Furthermore, these experiences often lead to post-secondary pursuits and careers in STEM (Science, Technology, Engineering and Math) fields. In order to demonstrate the positive impact of these types of experiences here is some feedback from some of the students, teachers and a judge who participated in the events this year:

> *"This year's science fairs have been a life changing experience. I fortunately got to attend both the regional and national fairs and although it was upsetting learning that we were not able to attend an in-person fair, the online equivalents were truly extraordinary. They allowed me to interact with students around my age from all over the country who are just as interested in science as I am. The judges were all wonderful and they inspired me as even throughout a hard year they still seemed as excited as ever to be a part of the fairs. The events from the CWSF were amazing. The keynote speakers were superb and the activities were very entertaining. It was like something I've never experienced before and I am very appreciative of being able to attend and very glad that I did. It was an unforgettable week". - student*

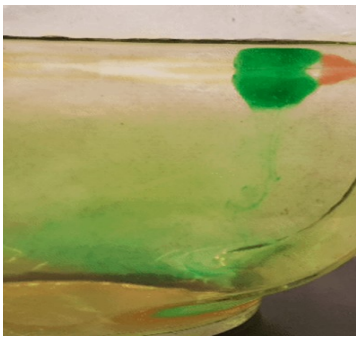
> *"The biggest thing about the virtual fair for me was the engagement piece. They chose a topic they were interested in and they ran with it! It brought a couple of students out of their shell and engaged others. The highlight for me was when a parent messaged me a few days later saying that she was impressed with her son's new found interest in science. The engagement piece is the key to developing deep learning opportunities for our students" – Science teacher*

> *I was so impressed with how confident they all were. Confident in the way they spoke and what they knew; great oral delivery. But more importantly, equally confident in talking about what they didn't know, the gaps, room for improvement, etc. A key piece in showing they are all eager to grow, learn, be innovative, and make change. I was also impressed with the variety of topics all relevant to global affairs. The level of details and interest portrayed (they are) clearly driven by a passion for their topics. It's clear these guys are highly aware and well- rounded individuals. Well done everyone!" – Judge*

(See more comments, page 8)

These positive comments bode well not only for the future of science fairs and other deep learning activities, but also for our youth to meet the challenges that our province faces now and in the future.

PROFESSIONAL LEARNING OPPORTUNITY THROUGH NATIONAL GEOGRAPHIC CERTIFICATION PROGRAM



Convection of cold water downwards… that's a current!

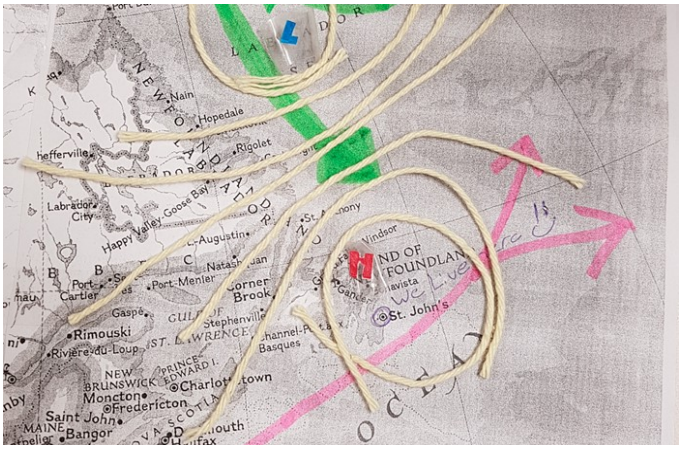
"My fellow educators were of great support for the risk taking required to develop and implement a new lesson."

I attended an in-person conference a few years ago and visited the National Geographic booth. I was scooping up some swag when a staff member asked if I was interested in becoming a National Geographic Certified Educator.I thought, how cool would that be! Later that week I attended their conference session and was hooked - three certifications later and I am still learning with them and creating some engaging lessons. Here is a short video tour to help you find resources and how to sign up.

The Nat Geo courses make emotional and practical connections with participants. There are goals and objectives that are lofty; these draw you in and push you as a learner. On the practical side, the structure of the certification helps to keep you on track. In addition, the lesson plans have Nat Geo objectives that appeal to students. The structured professional learning facilitates lesson development, allows time for self-reflection, and facilitates communication/collaboration with fellow educators.

At the end of each section (usually 3 or 4) you are given high quality evaluation/ feedback from peers and National Geographic staff. I found the social interaction engendered through the course structure to be a positive support. My fellow educators were of great support for the risk taking required to develop and implement a new lesson - there was great camaraderie among educators who were going for it!

For the first required lesson of my initial certification, I developed and tested activities that required students to investigate ocean current structure and functions using iceberg ice and maps. Here is a video of my submission of this lesson https://youtu.be/ZWR9zaNs9lw. The second lesson, developed during the Climate Change Course, required me to include modeling. I chose to focus on sea level rise and ocean acidification. Finally, in the Geo Inquiry Course I focused on local ocean problems such as erosion caused by sea level rise and the loss of eelgrass communities due to industrial development.



Mapping local currents and weather patterns in Science 1206

PROFESSIONAL LEARNING, NATIONAL GEOGRAPHIC (CONTINUED)

For the complete lesson plans from my courses visit these links:

- NG certified educator course - Ocean currents - Lesson Plan PDF & capstone video
- NG Climate change course lesson plan - Lesson Plan PDF Climate change models - Initial Model & Revised Model, Final Submission - Climate Change Model
- Geo-Inquiry lesson - Lesson Plan PDF

This Professional Learning opportunity pushed me to reexamine my teaching of specific topics and challenged me to try something different. My take away message to you is this: no lesson will be perfect the first time so go for it! Learn from the shared experience with your students, then reflect on how to make the lesson better! Being a co-learner with your students is a sure fire way to increase their engagement.

If you are interested in certification I encourage you to visit the National Geographic website at https://www.nationalgeographic.org/. You will find some practical and sensational teaching resources on this site that may inspire you to create new lessons for your students while obtaining a valuable certification. Please contact me for support and collaboration - p.wells@mun.ca

Pat Wells is Science Department Head at Holy Spirit High School. He is also a PhD candidate at Memorial University.

"You will find practical and sensational teaching resources on the National Geographic website."

MAKER FAIRE NL 2021- A SUCCESS STORY!

700+ makers!

65 + Submissions!

20 + involved teachers!

12 + participating schools

The 1st Maker Faire NL was a ***great success***! We are so proud of you, Newfoundland and Labrador!

We invite you to check out the Makers of NLESD! You may find inspiration for a summer project or next year's Maker Faire! All virtual submissions can be viewed here: https://sites.google.com/nlesd.ca/makerfairenl/projects

NLTA Math and Science Special Interest Council and Brilliant Labs would like to thank all teachers, parents, and administrators who encouraged and supported students through their creation and design process!

Prize winners were selected using a random draw of the students who have been chosen to submit their projects to the Brilliant Labs Atlantic Maker Faire. Of the 9 projects invited to submit to the Atlantic Faire, all 9 entered on time! In total,17 students represented NL! All projects can be viewed here: https://tv.brilliantlabs.ca/video-category/makerfaire/

MORE QUOTES FROM SCIENCE FAIR PARTICIPANTS

"I liked the Science Fair because I got to work with my friend. I had fun with the slideshow, and the experiment. I was a bit nervous for the meet, but when I got there, it was fun." –student

"I liked the Science Fair because it was well set up and enjoyable and fun with a partner. The awards ceremony made me feel excited when I entered the call and me and my partner were texting each other back and forth with excitement. Overall the science fair was a big part of my year and can't wait to do it next year!" - *student*

"I think the science fair was very fun because I like doing things like that and I don't usually get to. The online part did get a little frustrating but overall it was a good opportunity "- student

"To me the science fair was an opportunity to try something new! I've always loved science, I find science so interesting and it can get you so far in life. Plus my partner was a joy to work with; she made the whole project 10 times better. I've never done a science fair before but this one was like a roller coaster, there were ups and downs; things we had to fix, but that was the best part." -*student*

"I believe the science fair was such a learning experience. It not only allowed me to look deeper into a topic I may have never researched, but also gave me a life-time achievement of participating in both the regional and The Canada Wide Science fair. It feels like an important accomplishment just to be able to say I was able to compete as a finalist out of many students across Canada." - student

"I just to want to say a big thank you for having (the student) work through the Science Fair project. She is a quite reserved kid, but man, was it fantastic to see her get so engaged and interested in something of that nature. Hats off to you! You have me now wanting to do something within my Science 1206 class next year" –*teacher/administrator*

MSSIC PROFESSIONAL LEARNING FUND

Math-Science Special Interest Council

MSSIC encourages its members to pursue individual professional learning opportunities. To support this, MSSIC has established a budget to support teachers' participation at workshops, conferences and other events that will lead to increased professional and pedagogical knowledge, to improve their practice and, ultimately, the achievement of students in this province.

Eligibility

1. All requests for funds must focus on the professional learning of the applicant.
2. All applicants must give documented evidence that additional sources of funding have been investigated and provide details of other funding received/ available.
3. To be eligible, an individual must be an active member of the NLTA, as described by Section I.A.1 of NLTA Policy.
4. Individuals must spend at least 50% of their time directly providing instruction to students. One-on-one instructional time does not count towards this requirement.
5. At the time of application, individuals must be returning to the classroom in the consecutive school year.

The applicant cannot be in receipt of funding from other NLTA groups/ councils for the event in question.

Grants are awarded two (2) times a year, provided there are suitable applications and funds available. The deadlines for receipt of applications are the third Friday of May and November.

Funds must be approved in advance. The program does not offer retroactivity.