The Alberta Science Teacher

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Fun at the Bamfield Marine Sciences Centre

From the Editor

Spring is a time of renewal, and for some of us that means cleaning out the old binders (OK, USB sticks) to make way for new tools. (Well, at least we can think about getting rid of those oh-so-out-of-date resources!)

This issue of *The Alberta Science Teacher* offers new resources for your great spring cleanup. You will find numerous up-to-date resources here, including a website featuring mice that have had a few too many (Biology 30 resource), more great crates from the Science Alberta Foundation (Science K–9) and the CMASTE resource database (Science K–12).

If you are up to the challenge of renewing your professional development, check out the great new opportunities from Inside Education. If you've never been on one of Inside Education's ecotours, you don't know what you've been missing!

Don't forget to check out the biology and chemistry regional workshops taking place in your area. Go to the Science Council website (http://sc.teachers.ab.ca) for details and updates.

As always, if you have any comments about the newsletter, or have an article or idea, please contact me at andilynn.bender@gmail.com.

Happy spring cleaning!

Andi-Lynn Bender

Contents

From the Council

President's Message

After the holidays, I begin every new year by reflecting on everything that happened to me, personally and professionally, over the last year. This year, however, it was a little different, because along with my reflection, I also began to wonder what the new year might bring. With all the thoughts that were running through my head, I realized that I was getting excited about all the possibilities.

As the new president of the Science Council, I look forward to working with as many science teachers from across the province as possible. This collaboration has already begun with the wonderful conference in Calgary this past November. There, I had a chance to talk with many teachers from across the province to get a better understanding of the successes and challenges we see in our everyday professional lives. I want to thank Ed Leong and his team for making this conference a success. I know that they spent countless hours planning all the events that transpired.

I would also like to acknowledge all the hard work and the many hours Colleen Yoshida put in as president over the last two years. Coming into this position is a little intimidating, but with her direction and support I believe that I will be able to fill her shoes. I also thank Kevin Joncas, Corey Karvonen-Lee and Wade Strass for their hard work and dedication to the council over their many years of service. They will be missed at our meetings, and I hope all the best for them.

New ideas and directions will be occurring within the Science Council over the next few years. I have some ideas for connecting the council with other organizations for increased collaboration that will benefit members. I'm very excited about these plans, and I can't wait to start working on them!

If you have any ideas or suggestions, or would just like to get involved, please do not hesitate to contact me or another member of the executive council (see the executive list on the back page for contact information). We are here to help you.

I wish you all a great year!

Erick Noriega

Science Teacher News

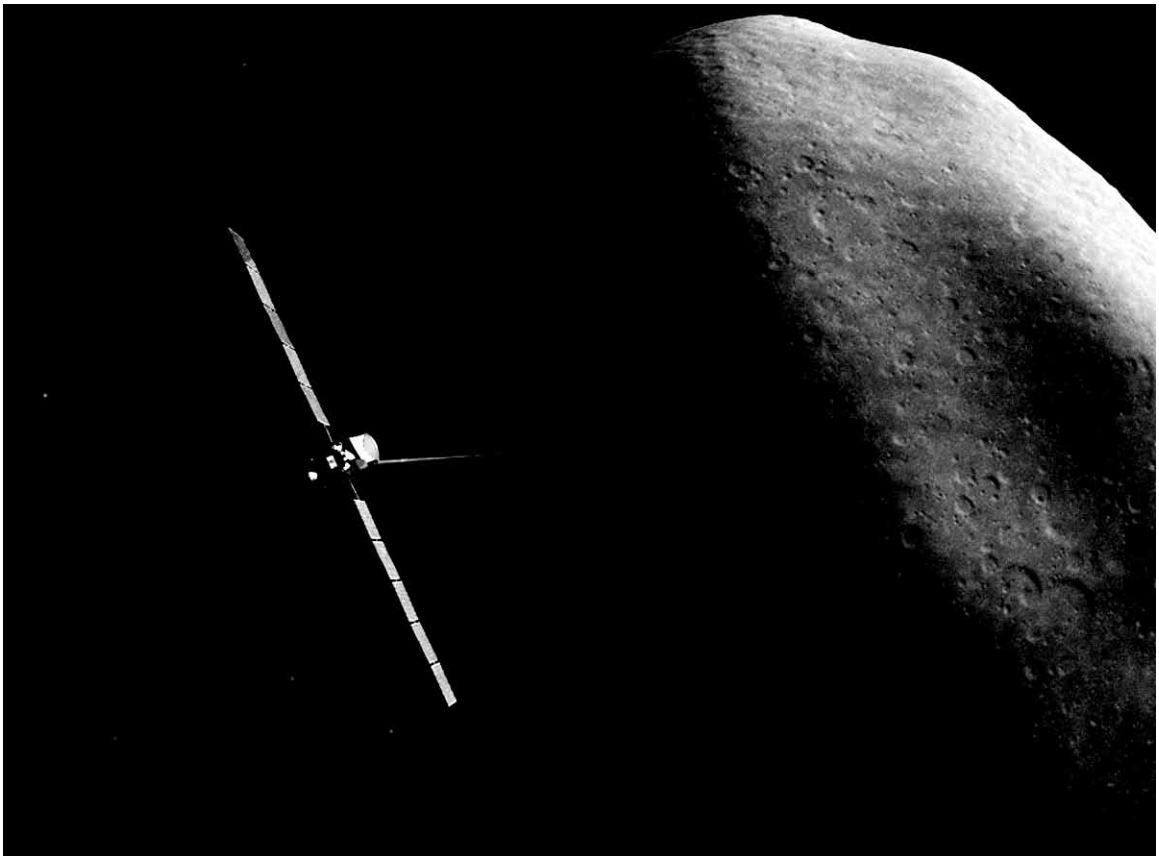
Where Did All These Gadgets Come From?!

Reprinted with permission from NASA's Space Place (http://spaceplace.nasa.gov). Minor changes have been made to spelling and punctuation to fit ATA style.

Ion propulsion. Artificial intelligence. Hyperspectral imagers. It sounds like science fiction, but all these technologies are now flying around the solar system on real-life NASA missions.

How did they get there? Answer: the New Millennium Program (NMP). NMP is a special NASA program that flight tests wild and far-out technologies. And if they pass the test, they can be used on real space missions.

The list of probes that have benefited from technologies incubated by NMP reads like the *Who's Who* of cutting-edge space exploration: *Spirit* and *Opportunity* (the phenomenally successful rovers exploring Mars), the *Spitzer Space Telescope,* the New Horizons mission to Pluto, the Dawn asteroid-exploration mission, the comet-smashing probe *Deep Impact* and others. Some missions were merely enhanced by NMP technologies; others would have been impossible without them.



Dawn *will be the first spacecraft to establish orbits around two separate target bodies during its mission, thanks to ion propulsion validated by* Deep Space 1.

"In order to assess the impact of NMP technologies, NASA has developed a scorecard to keep track of all the places our technologies are being used," says NMP manager Christopher Stevens, of the Jet Propulsion Laboratory.

For example, ion-propulsion technology flight tested on the NMP mission Deep Space 1, launched in October 1998, is now flying aboard the Dawn mission. *Dawn* will be the first probe to orbit an asteroid (Vesta), and then travel to and orbit a dwarf planet (Ceres). The highly efficient ion engine is vital to the success of the three-billion-mile, eight-year journey. The mission could not have been flown using conventional chemical propulsion; launching the enormous amount of fuel required would have broken the project's budget. "Ion propulsion was the only practical way," says Stevens.

In total, 10 technologies tested by *Deep Space 1* have been adopted by more than 20 robotic probes. One technology, the small deep-space transponder, has become the standard system for Earth communications for all deep-space missions.

And Deep Space 1 is just one of NMP's missions. A half-dozen others have flown or will fly, and their advanced technologies are only beginning to be adopted. That's because it takes years to design probes that use these technologies, but Stevens says experience shows that "if you validate experimental technologies in space, and reduce the risk of using them, missions will pick them up."

Stevens knew many of these technologies when they were just a glimmer in an engineer's eye. Now they're "all grown-up" and flying around the solar system. It's enough to make a program manager proud!

The results of all of NMP's technology validations are online, and the list is impressive: http://nmp.nasa.gov/TECHNOLOGY/scorecard/scorecard_results.cfm. For kids, the rhyming storybook Professor Starr's Dream Trip: Or, How a Little Technology Goes a Long Way (at http://spaceplace.nasa.gov/en/kids/nmp/starr) gives a scientist's perspective on the technology that makes possible the Dawn mission.

Tony Phillips

Professional Development

Inside Education Teacher PD

Note: Some of these opportunities have already taken place, or the deadlines to apply have passed, but keep these and other Inside Education programs in mind for the future!

The following all-expenses-paid PD opportunities are available for Alberta educators. For more information on these and other opportunities, go to www.insideeducation.ca/prodev/prodev.html.

Boreal Traditions Education Tour

Lac La Biche, May 7–9, 2009

Have you ever spent a night in an old-fashioned trapper's cabin? Come along for a three-day learning adventure where you will investigate the land, water and people of Alberta's Boreal Forest Natural Region while learning about the role of natural resources in the development of the area. Appreciate the value of traditional ecological knowledge in the various activities taking place on the landscape, and discover how this valuable landscape is managed.

Water Education Tour

Calgary, May 28–30, 2009

Don't get bogged down in the issues. Soak up this exploration of water in Alberta through an exciting three-day education tour, and become the water expert in your school. Explore a watershed and factors that influence its health, take part in hands-on water quality testing, travel the Bow River on an interpretive raft trip through Calgary, and examine current and emerging water issues through discussions with various interest groups. After all, water is considered to be *the* issue of the 21st century. (The application deadline was April 29.)

Energy and the Environment Education Institute

Fort McMurray to Pincher Creek, July 6–11, 2009

Join us for this illuminating tour of discovery, from the oil sands of Fort McMurray to the wind turbines of Pincher Creek! We will look at the many ways energy is developed and used in Alberta by examining renewable and nonrenewable sources and the opportunities and challenges associated with each. Consider multiple perspectives while looking at the many facets of the ever-growing energy debate in our province. (The application deadline is June 5.)

Resources

Three Calgary High Schools Visit Bamfield Marine Sciences Centre

On Thursday, April 9, 28 students from three Calgary high schools (Bowness, Ernest Manning and Henry Wise Wood) flew to the Bamfield Marine Sciences Centre on Vancouver Island to participate in its public education program.

The students were in awe of the educational experience. Some of their favourite activities were looking at the phosphorescent plankton at night and participating in the marine invertebrate hands-on lab. The activities and labs can be put together in many different combinations, depending on group interests and school curricula.

For more information on the program, contact Anne Stewart at atastewart@bms.bc.ca, or go to www.bms.bc.ca/pubed/.

CMASTE Resource Database

The Centre for Mathematics, Science and Technology Education (CMASTE) at the University of Alberta has developed and tested a partner resource database.

Alberta science teachers and students have access to an embarrassment of riches in terms of resources. At least 75 CMASTE partners provide resources and services to Alberta K–12 science classrooms. These partners are government and nongovernment agencies (such as Alberta Environment and Inside Education), along with industry (for example, EnCana).

The difficulty for teachers is finding out who has what resources and services at what grade levels and on what topics. A solution is the CMASTE searchable online database. To access the database, go to www.CMASTE.ca, click on Curriculum Resources and then select Search Partner Resources.

A search for "climate" results in a list of 14 resources, and a search for "Grade 5" returns 92 resources and services. Each item in the results includes the name, the subject and the nature of the resource, along with a link to more details (including grade level, cost and contact information).

CMASTE distributes only its own resources, but advertises everyone's. Teachers and partners are encouraged to help CMASTE provide this service; let us know about any errors or omissions.

Frank Jenkins
CMASTE Codirector

Reading Research Results

CRYSTAL-Alberta (the Centre for Research in Youth, Science Teaching and Learning, at the University of Alberta) is involved in research and development in K–12 math and science reasoning. Resources have been developed related to the scientific reasoning necessary for reading and understanding research reports (for example, a report on the effect of diet on the onset of some form of cancer).

To critically read research reports, one must understand terms and concepts such as the following:

- Correlational studies versus cause-and-effect studies
- Clinical trials versus anecdotal evidence
- Short-term studies versus long-term studies
- Random samples versus biased samples
- Small sample sizes versus large sample sizes
- Single-blind designs versus double-blind designs
- Beneficial effects versus placebo effects
- Control groups versus experimental groups
- Reliable evidence versus accurate evidence
- Coincidence versus significance
- Refereed publications versus nonrefereed publications

To be scientifically literate citizens, we need to be able to critically evaluate what we are reading in newspaper reports, for example. Questions that should be asked reflect the concepts listed above:

- What kind of study was this? Can it attribute cause?
- What was the length of study, and what was the size of the sample?
- Where was this study published? Was it refereed by recognized experts?

Where are these concepts listed in K–12 science curricula? If these concepts aren't in science curricula, why not? If they are in curricula, how can we present and assess them in classrooms? Some ideas are provided on the CRYSTAL-Alberta website (www.CRYSTALAlberta.ca). Go to the resource bank, and click on Science Reasoning Text and then Nature of Scientific Research. Be sure to look at the exercises, too.

At a minimum, teachers need to educate themselves and to start using these terms and concepts in their practical and tangential instruction. Perhaps this will lead to formal inclusion in curricula and assessment.

Frank Jenkins
CRYSTAL-Alberta Outreach Coordinator

Space Place Podcasts

Why is Earth's core so hot? Blistering hot molten rock bursts through weak places in Earth's crust. So, what is down there, and why is it so hot? Earth's core may seem as mysterious and remote as outer space, but scientists actually have learned a great deal about it. Listen to a scientist explain.

To listen to this and previous Space Place podcasts, go to http://spaceplace.jpl.nasa.gov/en/educators/podcast/. You can also subscribe to the podcasts and read transcripts.

SDWF Environmental Education Programs

The Safe Drinking Water Foundation (SDWF) is launching webinars and teacher institutes to help teachers maximize opportunities and develop creative resources to explore the SDWF's environmental education programs in the classroom. The American Ground Water Trust is adapting its highly rated teacher institutes from the US and partnering with SDWF to bring them to Canada.

The webinars are designed to encourage teachers and offer support for presenting water science in an interesting, hands-on manner to inspire students. All you need in order to participate is Java software. A webcam is great for urban participants, and headphones or speakers (for a group) and a microphone are better suited to rural participants with limited bandwidth. Audio and verbal participation is best, but text communication will work, too. If you would like to be informed of upcoming webinars, e-mail info@safewater.org.

Currently, the SDWF offers teachers five education programs: Operation Water Drop, Operation Water Pollution, Operation Water Flow, Operation Water Health and Operation Water Spirit.

Operation Water Drop (OWD) is the SDWF's longest-standing education program. Over 800 kits were distributed to schools last year, and the kits have been rated highly by educators everywhere. Elementary teachers demonstrate to students how to test their community's drinking water for seven different parameters included in the Canadian Drinking Water Guidelines. High school students conduct hands-on tests for thirteen different parameters and compare their results with other urban and rural treated drinking water supplies, as well as to a raw source water sample.

Operation Water Pollution (OWP) can be taught in science or social studies, and educates students about the various forms of water pollution, how water pollution affects the world, how it is cleaned up and what they can do to help. A total dissolved solids (TDS) meter and a pH meter are included in the kit, and students learn why it is important to monitor these factors and why levels should be kept to a minimum.

Many OWD and OWP kits have been sponsored by Green Street and by various chapters of the TD Friends of the Environment Foundation.

The following programs are available free of charge on the SDWF website (www.safewater.org).

Operation Water Flow (OWF) gives students a greater understanding of the economic, social and environmental concerns regarding water issues in Canada. OWF can be taught in math, biology, chemistry, science or social studies. Each lesson leads naturally into the many other programs now available from the SDWF.

Operation Water Health (OWH) provides an opportunity to investigate health issues such as water-borne illnesses and contaminated water, and it encourages students to do their part to make a difference.

Operation Water Spirit (OWS) is available to all schools across Canada free of charge. It supports and encourages a greater understanding of Aboriginal culture and beliefs related to water issues. A new component of OWS has been added this year: a teacher resource to encourage teachers to introduce Aboriginal culture into the classroom, plus a compelling session on Aboriginal identity. The lesson plans for all grade levels include many stories, and they are now available in Cree, in both written and audio versions.

Many of the programs are now available in French and Cree, as well as English.

Also, the SDWF will be introducing a new program in September 2009—Operation Water Biology. This program will let students do hands-on experiments to show how biology can replace chemicals in the water treatment process, thereby offering sustainable solutions that produce the highest possible quality of drinking water while leaving the smallest possible environmental footprint.

Stoned Mice? A Biology 30 Interactive Tutorial

The University of Utah offers a number of fun and interactive tutorials that can be used for the new Biology 30 course. One of my favourites is Mouse Party at http://learn.genetics.utah.edu/content/addiction/drugs/mouse.html.

The partying mice have been given various drugs, including alcohol, LSD, ecstasy, marijuana, heroin, cocaine and methamphetamine. You, the researcher, examine one mouse at a time, and a short tutorial demonstrates and explains how each drug affects signal transmission at the synapse and its effect on the movement of various neurotransmitters.

The animations are excellent. Students really enjoy this learning object.

Rachel Toews
Biology Director

science alberta FOUNDATION

EXHIBITS

Fun and interactive, our exhibits showcase current science in industry and everyday life.

Looking to add a fun, cost-effective experience to a group event, tournament, exhibition or rally?
Science Alberta Foundation's Exhibits are accessible, entertaining and educational.

All for just **$50** incl.shipping

Great for all spaces – libraries, schools, museums, community centres and local events. Exhibits are self-contained games and activities that introduce science concepts to users, and do not require on-site facilitation.

Slap Shot! NEW

This new interactive exhibit provides people of all ages a chance to experiment and choose the best puck for the hockey game. In the course of Slap Shot!, visitors predict, then test which puck will be the most stable in flight for their hockey game: a hollow puck, a medium weight puck or a heavy puck.

Made possible through funding from RBC Foundation and Edmonton Oilers Foundation.

Hurry Hard! NEW

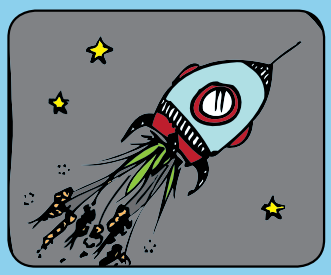
Think you can draw to the button? Hurry Hard! provides people of all ages a chance to experiment and choose the best ice surface for the curling sheet. In the course of the Science of Curling game, visitors predict, then test which ice surface will get our curling rock to the button: smooth ice, moderately pebbled ice or heavily pebbled ice. Watch while a curler throws the rock down your ice surface choice.

Made possible through funding from Natural Science, Engineering and Research Council (NSERC – Promo Science).

Breakdown! The Making of Ethanol NEW

EverWonder™ how we get ethanol from starch? Depending on your ability to choose the right enzymes and make the match, the amount of glucose you produce will be converted to ethanol that can fuel a family vehicle, a race car or an airplane.

Made possible through funding from Husky Energy.



Mystery of the Missing Milk

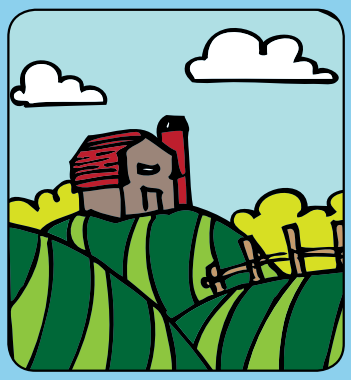
This digital exhibit lets people help Farmer Joe discover how to increase his cows' milk production. Get a moooooove on, it's going fast.

Made possible through funding from Alberta Milk Producers.

Dairy Dilemma

This hands-on, interactive exhibit lets people test milk entering a dairy processor for bacteria and then pasteurize it. It's deliciously fun!

Made possible through funding from Alberta Milk Producers.



Top Cow

A digital exhibit where visitors act as game show contestants creating yogurt, ice cream, cheese, or if it all goes wrong - goop!

Made possible through funding from Alberta Milk Producers.

What's Fuelling Your Future?

This interactive exhibit introduces people to the many uses of a common crop grown in Alberta. Visitors embark on a digital driving adventure through gleaming yellow canola fields and are asked to make choices about how canola can be used to make alternative products.

Made possible through funding from Alberta Canola Producers Commission.

Email exhibits@sciencealberta.org to book an Exhibit today!

Science Alberta Foundation is a non-profit organization committed to increasing science literacy and awareness. Our programs motivate children, youth and families to embrace lifelong science and technology learning. The Science Alberta Foundation is committed to creating tomorrow's knowledge workers and instilling an appreciation of science in a new generation of Albertans. For more information on our programs, such as Science-In-A-Crate, Wonderville.ca, Science Challenges and our educator resources, please visit our website.

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inspiring minds and changing futures

More Great New Crates!

The Science Alberta Foundation's Science-in-a-Crate program provides highly visual, hands-on, minds-on activities as the context for learning how science is used in everyday situations. The crates engage students and bring science to life in the classroom. Collaborating with teachers, students, science experts and sponsors, the Science Alberta Foundation ensures that each crate accurately reflects real-life science and curriculum outcomes while motivating learners with a wide range of learning needs to explore science and technology.

The Science Alberta Foundation is excited to introduce the following new crates this year.

New Crates

Gold Rush to 10
Kindergarten (Math)

Join Mr Lemon and his four-legged pal, Jenny, as he searches the mountain regions for his lost gold mine. This quest to "get to 10" invites students to count, to build and compare sets of objects, to explore the patterns and relations in our numbering system, to classify and describe the attributes of objects, to build 3-D shapes, and to represent number operations through play and the use of manipulatives.

Grassland Gatherings
Grade 1 (Needs of Plants and Animals)

Become a junior wildlife biologist and explore the needs of plants and animals in the grassland regions of southern Alberta. Observe and classify some of the species that make this area home and check out their habitats. Learn how these plants and animals must adapt to the conditions around them in order to survive, and discover how they are dependent upon one another. Find out ways in which they are valued as living things, and recognize how we must provide for the plants and animals in our care.

Leonardo's Engineering Academy of Light and Shadows
Grade 4 (Light and Optical Systems)

Leonardo da Vinci was an architect, a scientist and an engineer who combined scientific intellect with artistic creativity to produce hundreds of designs. As optical engineers training at Leonardo's Engineering Academy of Light and Shadows, you will learn the basic concepts of light and shadow and test Leonardo's theories.

Ways of Knowing: Teaching Time, Weather on the Trapline
Grade 5 (Weather Watch)

Join Clifford and his Mooshum out on the trapline to learn about weather. Students test various fabrics, describe the effects of the Sun's energy on seasonal changes, learn how important observation is when forecasting weather, understand and recognize different climates, describe how dew comes from the air, use digital equipment to measure and track local weather, and describe how uneven heating and cooling affects air movement. As part of the Ways of Knowing series, this bilingual (English and French) crate honours Aboriginal perspectives in the study of science.

Power Productions
Grade 5 (Electricity, Magnetism)

Power Productions is a large theatre company that needs help! Students become electrical apprentices hired on to complete a list of seven jobs to get the theatre in working order, ready for the show. Through these engaging hands-on activities, participants restore power, try to reduce energy costs, repair circuits and move backdrops

using an electromagnet. The activities introduce students to conductors, resistors, insulators, circuits, electromagnets and electrical safety.

Crash Landing: Aeronautical Engineering
Grade 6 (Air and Aerodynamics)

Have you ever wondered how living creatures and heavier-than-air machines can fly? Discover how by exploring the principles of flight, the four forces that affect objects moving through the air, and the concepts of aerodynamics and design.

Ways of Knowing: Lessons from the Sky
Grade 6 (Sky Science)

In seven beautifully illustrated activities, students use models and stories to develop their understanding of astronomical objects in the sky. Students learn about the motions and characteristics of stars and the Moon, explore the relative position and motion of objects in space, and model seasonal cycles and phases of the Moon. As part of the Ways of Knowing series, this bilingual (English and French) crate honours Aboriginal perspectives in the study of science.

The Griffin Inquest
Grade 6 (Evidence and Investigation); High School Forensics

A pipeline explosion. A late-night phone call. A threatening letter. Six suspects. Use forensic techniques in the areas of fingerprints, fibre analysis, footwear impressions, tire impressions, soil analysis and questioned documents to help Sergeant Richardson and her forensic team discover the true identity of the perpetrator in The Griffin Inquest. (This crate has multiple levels to address increasing inquiry and problem-solving abilities.)

Journey to the Centre of the Reservoir
Grade 7 (Heat and Temperature)

Join superhero Joules Therm and become a technology expert in enhanced oil recovery. Learn about heat transfer by conduction, convection and radiation; check out the effect of heat on the motion of particles in matter and the viscosity of fluids; investigate the thermal conductivity of various materials, and digitally graph the differences between insulators and conductors; and participate in the Heat Ambush Game to reach the centre of the reservoir.

Coming Soon

Testing Materials and Design

This new Ways of Knowing title for Grade 3 is in development.

Math-a-Magic

This popular crate for Division II math problem solving has been updated, and more crates have been added to keep up with increased demand.

To Book a Crate

Book Science-in-a-Crate online at www.sciencealberta.org for only $25. Booking is fast and easy, and the crate will be delivered directly to you!

Inside Education Resources

Classroom Resources

Inside Education's newest classroom-ready, curriculum-connected education resources are available now!

Running Water Poster Education Kit

The Running Water poster education kit is now available for order. Focusing on issues of water management and conservation in semi-arid southern Alberta, the teacher's guide has activities for Grade 5 social studies and science; Grades 7, 8 and 9 science; junior high environmental and outdoor education; Science 14, Science 20 and Biology 20; and career and technology studies in agriculture technology and water management. This popular resource is sure to be a valuable addition to your classroom!

To order Running Water, and to browse through the other no-cost classroom resources available from Inside Education, go to www .insideeducation.ca/class/class.html.

Field Studies and Classroom Presentations

Inside Education's field studies programs and classroom presentations are engaging, experiential ways of learning for students.

Classroom Programming Wraps Up; Field Season Begins

From La Crete to Medicine Hat and everywhere in between, Inside Education had a terrific classroom season visiting thousands of students in hundreds of classrooms across the province. We thank all of you who welcomed us into your classrooms and hope that you found the presentations educational and enjoyable.

We are looking forward to a fun and exciting 2009 field season. We are fully booked and looking forward to seeing you and your class. If you have any questions regarding your program, please call us at 403-263-7720 (in Calgary), 780-421-1497 (in Edmonton) or 1-888-421-1497 (toll free).

Women in Science

Erin Harper: A Change in Direction

Reprinted with permission from the Alberta Women's Science Network (AWSN) website (www.awsn.com). Minor changes have been made to spelling and punctuation to fit ATA style.

Engineers are taught to expect the unexpected and to prepare for every possible outcome. Aerospace engineers plan for ways for pilots to safely land a plane in the event of mechanical failure. Structural engineers design sturdy buildings and bridges to withstand earthquakes and other natural disasters.

One thing Erin Harper, an environmentalist from northern Ontario, wasn't expecting was an incident that would suddenly change her life, including her career trajectory.

"I grew up outside my reserve in a small town called Nipigon, and we truly lived the outdoor lifestyle—hunting, fishing, canoeing, camping," Erin says. "I would often go out with my dad, and he was constantly teaching me about the boreal forest, so I would say my interest in the environment started when I was really young."

That interest eventually led Erin, 26, to environmental studies and, upon graduation, to continue toward a degree in environmental engineering at Confederation College in Thunder Bay. She worked at the Ontario Ministry of Natural Resources, doing creel surveys, taking fish samples for a study on the decline of brook trout on Lake Nipigon. She also worked closely with her mother, doing administrative work for a local firefighting base through the Ministry of Natural Resources.

Erin Harper

"But then I had a serious diving accident," she recalls. "I had to have back surgery and then take some time off school to recover."

While she was recuperating, Erin weighed her professional options and made a surprising choice.

"I wasn't sure if I'd be able to continue with field work, so I decided to go into teaching," she says. She went on to teach at a reserve in northern Ontario where her mother and grandmother were born. There, she was able to incorporate the

outdoors in her curriculum, going for nature walks, bringing plants into the classroom and exploring environmental issues. But it wasn't long before Erin grew restless.

"I loved teaching but felt it was time for a change of scenery, so I decided to move out to Calgary. My sister lives here."

Today Erin, who is First Nations Ojibwa, is the Aboriginal resource teacher at École St Martha School in the Calgary Catholic School District. St Martha currently has 550 students enrolled from kindergarten to Grade 9—and 33 of them are Aboriginal.

"I am here to support Aboriginal students who may be struggling not only with academics but with personal identity and social issues," she says. "I also serve as a source of academic support for the teachers, which means working collaboratively for the best possible outcomes for our Aboriginal students."

Erin's position is new to the school, in conjunction with an Aboriginal Pride Program to increase student achievement and success.

"In general, the graduation rate is still far too low for Aboriginal students, and we need to explore the underlying reason why there is such struggle from an academic perspective," she says. "The Pride Program is designed to raise awareness of Aboriginal issues and to teach the kids about their culture as First Nations, Métis or Inuit people. It's geared toward Aboriginal students, but the awareness is created among the entire school."

Erin has recently begun to blend her passion for teaching with her love of the environment by helping students explore education and career opportunities in the sciences.

"We have had Aboriginal mentors come in from APEGGA [the Association of Professional Engineers, Geologists and Geophysicists of Alberta], and they have been talking to the kids about future opportunities," she says. "We have some Grade 8 girls who are showing interest in the sciences. Having experienced professionals come in is really helping to open the girls' eyes to their potential. And they're beginning to see that the courses they choose in high school need to be science-based so they can go on to postsecondary studies."

Erin says that she is more than happy to help answer students' questions about university and about what it's like to work out in the field.

"I enjoy being able to give them real-life examples from my own background. That kind of knowledge really motivates them and helps them to see the possibilities in a clearer way."

Erin also appreciates the impact that external mentors can have on impressionable students. She is looking forward to giving them more exposure to APEGGA and programs such as Operation Minerva, which pairs science-minded girls with professional women who are established in the field of science and technology.

"There are many different roads these kids could be taking right now. They're struggling with all sorts of peer influences. Having women, especially Aboriginal women, speak about their personal successes is so valuable. It's not only inspiring; it is giving our kids a reality check that the decisions they make today can affect their entire future."

Barbara Chabai

Awards and Competitions

Eco-Challenge Student Grant Program Offers a Canadian Arctic Expedition

Do you know a high school student who has done great things to help protect the environment at your school or in your community? Through Eco-Challenge, its student grant program, Brita is looking to send three of Canada's most promising young environmentalists on a life-changing educational expedition to the Arctic this July.

The successful applicants will join explorer Geoff Green and his team from the award-winning organization Students on Ice (www.studentsonice.com) on an educational expedition to the Canadian Arctic. They will learn about climate change, environmental degradation, flora and fauna, glaciology, and much more—with leading researchers, experts and scientists in one of the world's greatest classrooms.

To apply, students must fill in an online form and submit a two- to four-minute video that showcases their leadership and what they've done in the community to help protect the environment. The application form is available at www.filterforgood.ca/eco-challenge_registration.php. Submissions are due by May 31.

Science Council Executive 2008/09

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