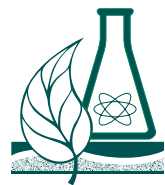


The Alberta Science Teacher



Volume 28, Number 3

April 2008



From the Editor

As each day passes, society becomes more aware of the needs of the environment. Environmental education begins with children, and who better than teachers to help educate about an ecologically responsible way of life?



As the desire to reduce, reuse, and recycle becomes a greater part of reality, so does our need to make personal and professional changes. To help protect the environment, the ATASC has decided to go green by going electronic. Our newsletter, along with other great teaching resources, will now be available on our website.

The cover photo is a shot of our “Big Foot” display at my school, Westminster Junior High School, in Edmonton. As part of the International Baccalaureate Middle Years Programme, the school focuses on a global issue to help the school do its part in education and advocacy for a better future. This, along with the council’s decision to go electronic, inspired an “Ecologically Friendly” theme for this issue.



This issue contains many resources for promoting an ecologically friendly life. There are lesson ideas, activities, student resources and websites to check out. Enjoy!

Please note that the last issue of *The Alberta Science Teacher* contained an error—the photograph that accompanied the article on Helen Madill should have appeared with the item about science fairs.

Andi-Lynne Bender

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Classroom-Ready Resources

Teaching Students About the Importance of Conserving Water



As there is very little fresh water available on Earth (only 3 per cent of the water on Earth is fresh water and only about 0.1 per cent of this is readily available as liquid water), it is extremely important to conserve water. The Safe Drinking Water Foundation (SDWF) publishes a monthly

online water-issues newsletter for youth, featuring a different water conservation tip for students every month. The following are the tips that have already appeared in previous editions of the newsletter:

- Did you know that turning the taps off when you brush your teeth can save up to five litres a minute? So turn that tap off when you brush your teeth, PLEASE!
- Leave a bottle of water in the fridge (a reusable bottle, filled with water from your tap) so that it is nice and cold, rather than running the water until it gets cold every time you want a cold drink. You will save a lot of water over the course of a month—and think about the amount saved over the course of a year!
- When you are helping your family by doing chores, remember to use your dishwasher and

washing machine for full loads only. Also, with washing machines avoid the permanent press cycle, which uses an added 20 litres for the extra rinse. If you must wash partial loads, adjust water levels to match the size of the load.

- Use the garbage disposal sparingly. Compost vegetable food waste instead and save litres every time!

The newsletters also contain many interesting articles as well as a puzzle for students to solve each month. SDWF education programs also contain lessons about water conservation, such as the Operation Water Flow lesson, “I Use THAT Much Water?!” The newsletters and educational programs can all be found at www.safewater.org.



EcoGeek

If you are searching for a website with up-to-date and interesting green ideas, issues and facts for the classroom, check out Y!Green at <http://green.yahoo.com/>.

My favourite link on the site is EcoGeek, where global warming is debated and blog entries are abundant. As the site says, “EcoGeek devotes its pages to exploring the symbiosis between nature and technology.” As an educator and advocate for a healthier environment, I found a quote from this blog to be very inspirational: “The next time you think one person can’t do anything about global warming, remember it all starts with education—and education starts with teachers.”



Rachel Toews

Some Ecological Footprint Websites

Ecological Footprint Quiz

www.earthday.net/footprint/index.asp

Determine the size of your ecological footprint by taking this 16-question quiz. The results compare your ecological footprint to the average ecological footprint in your country, and show how many planet Earths would be required if everyone lived as you do.

Electric Power Pollution Calculator

www.cs9network.com/elecpowerpolcalc.html



Enter your monthly (or annual) electricity use in kilowatt-hours; then use this online calculator to determine the number of pounds of sulphur dioxide, oxides of nitrogen, particulate matter smaller than 10 micrometres, carbon dioxide and volatile organic compounds generated, as well as the number of gallons of cooling water consumed in order to generate the amount of electricity required by your home in one year.

Atco Energysense House

www.atcoenergysense.com

Log on to this website and click on the line drawing of the house—this online simulation will help you to better understand your natural gas and electricity costs. After entering your natural gas and electricity rates, the month of the year you want to calculate, the square footage of your house, and the year your house was built, you can go through a model house to study the costs associated with the choices you make.

Wade Strass

Canadian Olympic School Program

The Canadian Olympic School Program is proud to announce the new Beijing 2008 Olympic Games curriculum at www.olympicschool.ca.

The Canadian Olympic School Program has been providing teachers with free classroom resources since 1988. It provides top-quality learning resources designed to meet provincial learning outcomes, while engaging students in the excitement of the Olympic movement.

Thanks to the generous support of RBC, we have expanded the program to include Grades 2–12, and have created a new website filled with great lesson plans, athlete videos, polls, puzzles and Olympic Games fun.

Our new elementary curriculum features a series of Olympian stories that focus on the Olympic values—excellence, fairness, personal growth, respect and leadership. Each story is written at three different reading levels (Grades 2–3, 4–5, and 6–7), and includes language-arts focused learning activities for each level.

The secondary curriculum consists of cross-curricular project packs that give students real-life Olympic Games problems to solve. Each project pack contains handouts, teaching tips, an evaluation rubric and a list of links to provincial learning outcomes.



Science Crates

Science Alberta Foundation is pleased to share its list of resources that have recently been approved by Alberta Education.

Crates

E-Factor: Understanding Common Energy Conversions

Science 24

From finding out about alternative energy and fuel efficiency to counting calories and comparing chemical reactions, E-Factor examines all aspects of energy in our everyday lives. Using a series of magazine articles, students tackle topics that include budgeting their energy use, experimenting with generation of alternative energy, calculating their maximum daily caloric intake needed, measuring fuel efficiency of cars and inventing a unique energy-saving appliance. Each article also showcases two career choices in the field it discusses.



Junior Paleontologist

Kindergarten and Grade 1



Dig into the world of paleontology—excavate a fossil dig site, create a cast of prehistoric life, build a life-sized dinosaur skeleton, design a dinosaur's epidermis and see how long it takes to sprint the length of a diplodocus.

Down Under: Discover Crawly Critters

Grade 2

Explore life in the garden with Ernie the earthworm. Examine real critters and plastic models to identify insect characteristics. Investigate the importance of being inconspicuous and create your own camouflaged critter. French translation copies will be available in 2008/09.



Making Waves: An Adventure with Sound

Grade 3



Follow Crash the Robot as he prepares to make a movie about sound. Activities range from experimenting with instruments and monkeying around at the zoo to sound-proofing a studio and learning about how sound travels through solids, liquids and gases. Students are encouraged to think about different forms of communication, sounds made by vibrations, the dangers of exposure to loud sounds, and the range of hearing among animals and humans. Although the crate is focused on the Grade 3 science program of studies, it also integrates components of the social studies, language arts, math, ICT and music curricula.

WasteWorld Inc

Grade 4

Ever wonder what happens to waste? Everyone is a consumer who creates various types of waste. We cut our grass, use motor oil and drink from plastic bottles. Participants will use observation and research skills to explore a series of scenarios to develop an understanding of the role that producers, processors and consumers play in waste-management issues.



Geologist's Boot Camp: Discovery at Mine 909

Grade 7



New minerals and rocks have been discovered in an abandoned mineshaft in northern Alberta. The town council has asked junior high students to identify three unknown minerals and rocks. But to learn about the unique properties of rocks and minerals and how they are formed, students will first attend geologist's boot camp.

Environmental ER

Grade 9



What happens when there is a breach in an oil pipeline? Discover the importance of science during an emergency response to an oil spill by becoming a specialist in disciplines including chemistry, wildlife biology, aquatic ecology, hydrogeology, soil sciences, environmental toxicology and oil recovery. Use this knowledge to decide on the best options for cleanup and long-term study of this oil spill.

Wonderville.ca Activities

Build a Tipi

Grades 3 and 7

Join Haley, Tommy and Marie as they observe a tipi raising. Experiment with the number of poles, construction materials, alignment and other parameters to learn how a tipi is built. This digital activity fits into the Aboriginal: Ways of Knowing program.



Wetlands

Grade 5

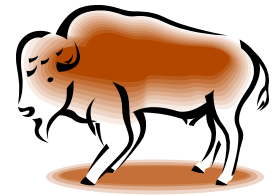


Take a field trip to the wetlands just outside of Wonderville. Identify some of the plants and animals located in the wetlands and determine their food chain classification. Focus on the frog population as an indicator species for wetlands, and learn to identify four distinct species both visually and vocally.

You Bet Your Hide!

Grade 5

Did you know that a buffalo has enough brains to tan its own hide? Haley, Crash and Grandpa explore traditional and commercial methods of hide tanning and learn the differences between physical and chemical processes along the way. This digital activity is a component of our award-winning Aboriginal: Ways of Knowing program.



The Case of the Kidnapped Cat

Grade 6



A science lab in disarray! A mysterious fingerprint! Where is Proton the cat? Compare known fingerprint patterns against the evidence and apply problem-solving techniques to identify the culprit. Help

Tommy and Nancy solve the case and find Proton!

The Tree Game

Grades 6 and 7

Join Haley Little Moccasin as she explores the woods behind her house. See first-hand how environmental conditions such as drought, infestation, competition, slope and fire affect the growth of trees. Select an environmental condition to study and then watch as the trunk cross-section slides out of the trunk to reveal patterns of growth for further examination.



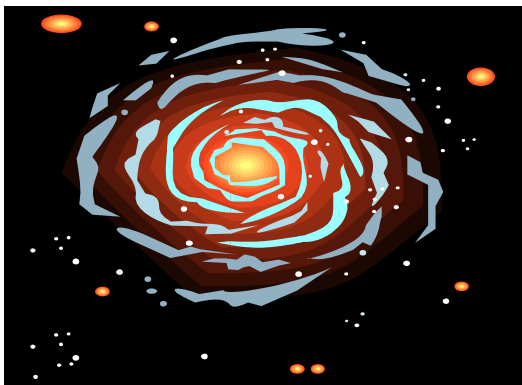
To book these crates and other curriculum-linked titles, go to www.sciencealberta.org.

Digital activities can be found at www.wonderville.ca.

Perimeter Institute Launches Free Teacher Resources

Our new and exciting classroom resources, Perimeter Explorations, have been designed to help teachers introduce and guide students through a variety of topics in physics. The first module in the series, The Mystery of Dark Matter, presents content related to curricula at the leading edge of scientific knowledge. The DVD, teachers' guide and student worksheets can be viewed online and are free for teachers only while quantities last.

Perimeter Explorations are being made available to teachers as a service by Perimeter Institute for Theoretical Physics (PI) of Waterloo, Ontario. PI is an independent, nonprofit organization whose mandate is to conduct both scientific research and educational outreach at international levels. This module, the first of several to come, helps fulfill the number-one request from hundreds of educators around the globe who visit the Institute's teacher workshops—to receive PI lessons in a comprehensive and easy-to-use format that can be used in class with students. The Mystery of Dark Matter was created with the participation of over 100 teachers, researchers and outreach staff. Visit www.perimeterinstitute.ca for lessons and other great information.



Quagmire: Role-Playing Game



Quagmire is an interactive role-playing game in which students (Grades 5 to 12) debate the fate of a salt marsh. The question is, should a local salt marsh be destroyed to build a highway, or should it be protected? Students assume different roles as they debate the issue in front of a council before a final vote.

To find more information or to register for Quagmire, go to www.clean.ns.ca and click on Programs; you will see a section labelled "Students and Teachers." Click on the link to Quagmire and scroll to the bottom, where you will find links to English and French elementary and secondary programs. Make your choice, and you will be connected to the Green Street website, where you can choose a program and register. Green Street is an organization dedicated to environmental learning and sustainability education; it is funded by the J W McConnell Foundation, and works through the Canadian Teachers' Federation and the Centrale des syndicats du Québec. More information about Green Street and its programs, and registration for Quagmire are also available at www.green-street.ca.
Quagmire est aussi disponible en français.

Catherine Joudrey
Clean Nova Scotia

Royal Botanical Gardens Virtual Field Trips

The Royal Botanical Gardens (RBG), located in Burlington, Ontario, opened in 1932 and covers 1093.5 hectares (2,700 acres). Part of a UNESCO World Biosphere Reserve, it contains four nature sanctuaries that protect Carolinian forest, oak savannah, Niagara Escarpment cliffs and ecologically significant wetlands. Its gardens feature dozens of plant collections, including the largest collection of lilacs in the world.

RBG has offered public education programs onsite for more than 60 years and is now providing interactive programs by videoconference. Some of the many programs offered are

- Creatures with Wings and Crawly Things, for kindergarten to Grade 2,
- Good Things Come in Trees, for Grades 4 to 12,
- Wetland Ways, for Grades 4 to 12, and
- Healing Plants, for Grades 9 to 12.



**ROYAL
BOTANICAL
GARDENS**
www.rbg.ca

Programs are booked by request; teachers will receive packages containing a presentation outline and pre- and postconference activities. For more information about RBG's virtual field trips, contact Karin Davidson-Taylor, outreach education coordinator, by e-mail at kdavidson@rbg.ca or by telephone at (905) 527-1158, ext 249. RBG's website is www.rbg.ca.



Cogno Science Puzzlers

Each week, share with your students a free thought-provoking science puzzler, drawn from the award-winning Cogno science board games. You'll receive a weekly e-mail with a fully illustrated one-page puzzler about astronomy, forces and motion, and/or life sciences, ready to be photocopied for students. The e-mail message includes the answer and explanation, allowing you to facilitate as much or as little discussion as you like. These puzzlers are recommended for Grades 3–8. For information and samples, and to register, see www.cogno.com/puzzlers.

Why free? Cogno's mission is to "inspire children to think critically and imaginatively." This mission is at the root of every effort we make, and these puzzlers are part of our effort to further our mission and help raise awareness for Cogno.

Jermaine Duffis
Content Development Associate
Cogno Products

Editor's note: All websites were accessed on March 26, 2008.

Student Camps

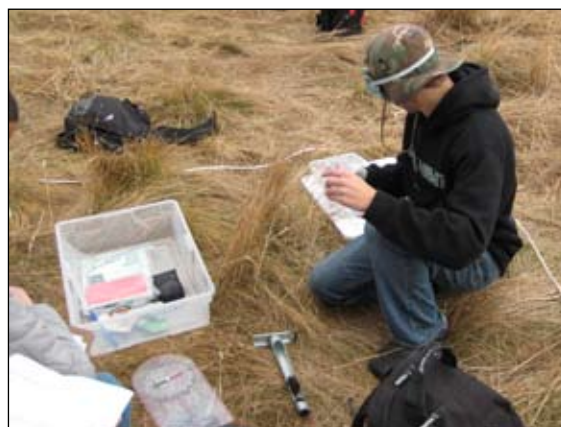
The Kananaskis Environmental Education Program

Unit B of the new Biology 20 program of studies requires students to explain that the biosphere is composed of ecosystems, each with distinctive biotic and abiotic characteristics. To accomplish this task, they perform a field study to quantitatively measure appropriate abiotic characteristics of an ecosystem and to gather, both quantitatively and qualitatively, evidence for analysis of the diversity of life in the ecosystem studied.

The Kananaskis Environmental Education Program (KEEP) in the Sibbald area (30 minutes west of Calgary) will provide a one-day instructional field trip to Grade 11 classes. The day is divided for participants to study two areas: grassland and forest. The instructors are knowledgeable and provide all materials necessary for both the qualitative and the quantitative field tests at a cost of \$6 per student.

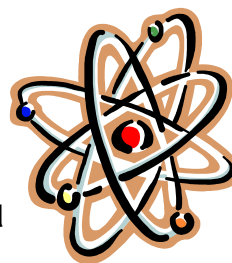


For more information, send an e-mail to Andrea Barnes of KEEP at andrea.barnes@gov.ab.ca. If you need a completed copy of the field trip forms required by the Calgary Board of Education, please contact Rachel Toews at rtoews@atasc.ab.ca.



Perimeter Institute Student Camp

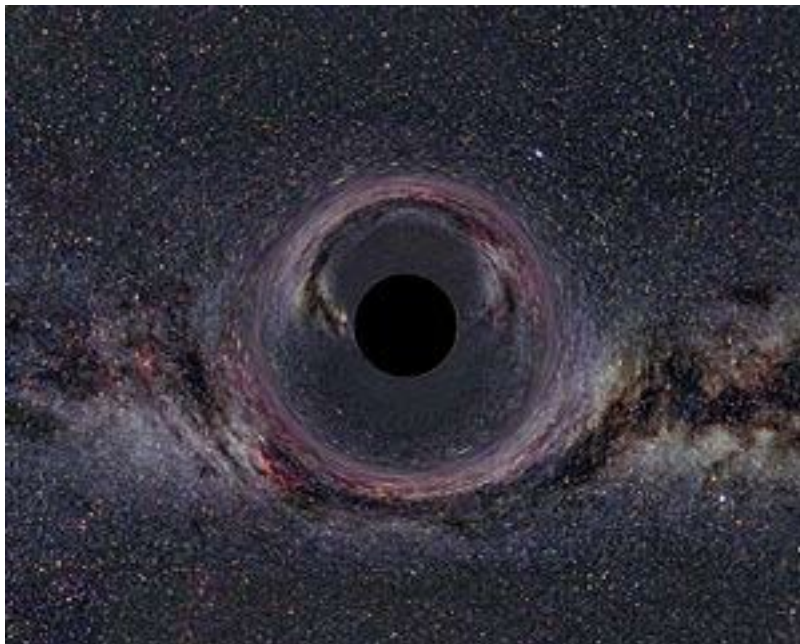
The International Summer School for Young Physicists (ISSYP) is an exciting and challenging two-week program for Canadian students in Grade 11 (or secondaire V in Quebec) and international students aged 16 and 17. The program explores the most fascinating ideas theoretical physics has to offer—from the weird quantum world of atoms and subatomic particles to black holes, warped spacetime and the expanding universe. Visit perimeterinstitute.ca for details.

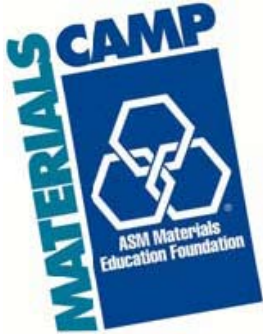


Professional Development

Perimeter Institute Teacher Workshop

The EinsteinPlus Teacher Workshop is a one-week, intensive residential workshop for international high school teachers that focuses on key areas of modern physics, including quantum physics, special and general relativity, and cosmology. It also incorporates sessions on innovative teaching strategies suitable for all areas of physics. For more information, go to perimeterinstitute.ca and click on Teachers under Outreach on the left-hand side of the page.





ASM MATERIALS CAMP™ - Teachers

Southern Alberta Institute of Technology

Calgary, Alberta, Canada

August 18 to 22, 2008

WANTED

WHO: SCIENCE/TECHNOLOGY/MATH HIGH SCHOOL TEACHERS

WHAT: To attend an ASM MATERIALS CAMP™-Teachers

WHEN: August 18 to 22, 2008

WHERE: Southern Alberta Institute of Technology (SAIT)

WHY: To EXCITE YOUNG PEOPLE in science, chemistry and math. We will show you how to use low cost / no cost, simple labs and experiments using everyday materials that can be integrated into your existing lesson plans to actively engage students in applied science.

MEALS: Snacks (morning and afternoon) and lunches will be provided.

ACCOMMODATIONS: A limited number of rooms are available for out-of-town applicants who do not have accommodations available in Calgary. Preference will be given to the applicants who apply early to attend this camp.

APPLICATION: Available at www.nacecalgary.ca

DEADLINE FOR APPLICATIONS: June 30, 2008

ELIGIBLE TEACHERS: High school teachers (public, private, independent) in science, technology, chemistry and math.

SCHEDULE: This is a full-day (8:00 to 5:00 PM), 5-day long workshop.
(Note: There is a possibility of late afternoon/evening in the event of field trips scheduled.)

GRADUATE CREDITS: Two (2) semester credits through the University of Washington (Seattle)

FACULTY: Primary faculty are two experienced high school "Master Teachers" who have taught materials science courses for many years and helped develop this innovative approach to hands-on learning of applied science principles.

SPONSORS: ASM Materials Education Foundation, ASM Calgary Chapter, NACE Calgary and the NACE Foundation.

Note: ASM International = The Materials Information Society www.asm-intl.org
NACE = National Association of Corrosion Engineers International www.nace.org

FOR MORE INFORMATION: Contact

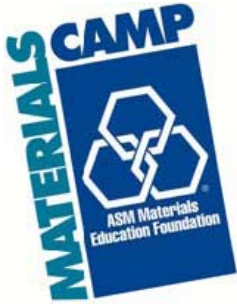
Pat Kaiserseder, pakaisersede@cbe.ab.ca; 403-294-8624

Matt Stroh, mejstroh@shaw.ca; 403-669-5490

Anthony Merle, Anthony.Merle@cnrl.com; 403-517-7301

Jeane Deatherage, Jeane.Deatherage@asminternational.org; 1-800-336-5152, ext. 5533; or

Visit the ASM Foundation website at www.asminternational.org/foundation.



ASM MATERIALS CAMP™ - Teachers

Southern Alberta Institute of Technology

Calgary, Alberta, Canada

August 18 to 22, 2008

Application Form

Part 1

1. Teacher's Name: _____
2. Home Address: _____
(Street or P.O. Box) (City) (Province) (Postal Code)
3. School Name: Southern Alberta Institute of Technology
4. School Address: _____
(Street or P.O. Box) (City) (Province) (Postal Code)
5. E-mail Addresses (Home): _____ (School): _____
6. Phone Numbers (Home): _____ (School): _____
7. Grade Level Taught: _____ Number of years teaching experience: _____
8. Subjects taught during the past 2 years: _____
9. Have you had any formal training in materials science or engineering? _____
If so, please specify: _____
10. Do you have any industrial experience? _____
If so, please specify: _____
11. Do you have access to a microscope? _____
12. What other teacher training programs have you attended in the past 5 years?

<u>Training</u>	<u>Location</u>	<u>Length of Training</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
13. Please list your academic degree/s:

<u>Degrees/Certificates</u>	<u>Years</u>	<u>Major</u>	<u>Minor</u>
_____	_____	_____	_____

Part 2

Please write a 100-word essay why you would like to attend this Camp and what your expectations are. (Use a separate sheet of paper and attach to this application form.)

PLEASE SCAN THIS FORM AND YOUR ESSAY AND E-MAIL/FAX

BEFORE June 30, 2008 TO:

Ms. Beth Daniel

Ammonite Corrosion Engineering Inc.

Email: b.daniel@ammonite-corrosion.com

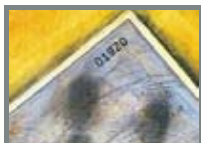
Fax: (403) 547-4571

Awards



2008 PSAC Public Scholarship Program

5 scholarships of \$1,000 will be awarded in 2008!



The Petroleum Services Association of Canada (PSAC) is pleased to announce a NEW scholarship program available for Canadian students, applicable towards studies at a post-secondary institution in Canada. Applications are being accepted for full or part-time studies in the following categories:

- Business / IT / Technology
- Engineering / Earth Sciences
- Trades / General Studies / Other



This program is made possible through the PSAC Education Fund, a program that strives to invest in the talent of tomorrow.

Applications can be found on our Web site at: www.pfac.ca under "What's New at PSAC"

**Application deadline: 5:00 pm
Friday, April 18, 2008**

www.pfac.ca

www.pfac.ca

How It Works

Applicants must be:

1. A Canadian Citizen.
2. 25 years of age or under at the time of application.

Awards are made only to those pursuing post-secondary educational or vocational studies in a diploma, degree or certificate program at an accredited institution. Applicants must be entering the institution within 12 months of being awarded the scholarship.

Only one application may be submitted per individual per year. Anyone who applied in previous years may reapply, however, those who have received PSAC scholarships in the past are not eligible.

Selection of the scholarship recipients is done by way of a "draw by chance" lottery, drawn from all eligible applications received. Selection is not based on academic standing.

Scholarship funds are issued, in the student's name, directly to the educational institution, upon receipt of written confirmation of admission and enrolment.

Questions? Contact PSAC:

Phone: (403) 264-4195

E-mail: info@psac.ca

Toll free: 1-(800)-818-7722



BIOTECANADA-BIOGEN IDEC
TEACHING
EXCELLENCE AWARD



BIOTECANADA-BIOGEN IDEC
PRIX D'EXCELLENCE DANS
L'ENSEIGNEMENT

About the Award

The *BIOTECanada - Biogen Idec Teaching Excellence Award* is a unique national award program dedicated to promoting and recognizing teaching of biotechnology at the secondary school level in Canada. It includes three annual cash awards, one for \$5,000 and two for \$2,500. The cash award would be divided equally between the winning teacher and his/her school. The school can use their portion to purchase scientific equipment or resource materials.

In partnership with the **Canadian Biotechnology Education Resource Centre**, this program invites secondary school teachers to participate in this annual award.

Who can apply?

Full time teachers currently presenting biotechnology curriculum in Canadian schools at the secondary school level or in grades 7 to 12 may apply.

Criteria

Competition criteria are based on the following principles:

- Demonstrated level of excellence and leadership of the teacher within their school board/district in delivering a biotechnology program;
- Creativity and innovation of teaching methods used to deliver curriculum;
- Information and relevance of scientific knowledge being offered;
- Evaluation criteria for student assessment.

Deadline for submissions:

All submissions must be received no later than **June 20, 2008** to BIOTECanada at:

130 Albert Street
Suite 420
Ottawa, ON K1P 5G4

The three winners will be announced during National Biotechnology Week 2008, September 19-26.

Any inquiries can be sent to: info@biotech.ca; Subject line: *Teaching Excellence Awards*
or call 613-230-5585

For more details about the award and its partners, visit

www.biotech.ca

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Personal information regarding any person named in this document is for the sole purpose of professional consultation between members of The Alberta Teachers' Association.

