

Brentwood Community News

Environment News

If it's April, then the 22nd must be EARTH DAY! Celebrate! It's the International Year of the Volunteer. Volunteer for the Earth!

Here are a few ideas:

- Climb the Calgary Tower later this month to support the initiatives of the Alberta Wilderness Association and the Canada Parks and Wilderness Society.
- Read a book about the Earth. Here's one: *The Web of Life* (From system science to Gaia) by Fritjof Capra. Hey, even at the microscopic level, each cell has a recycling centre. What are you doing to recycle and strive for balance in your own community "cell?"
- Beautify your immediate surroundings by picking up winter's litter, now exposed by recent melting of the last vestiges of ice and snow.
- Enjoy a walk, a bike ride, a look out your window. Spring is here; the birds are coming back; the prairie crocuses will be shooting forth any moment. When will you

see your first crocus or robin?

- Adopt-a-Park in Brentwood. There are still several parks available for care through the City of Calgary Parks and Recreation Department.
- Get a Green Map of Calgary at <http://www.telusplanet.net/public/sustcalg/greenmap/index.html>, or phone 270-0777. This is a fantastic illustration the city's ecologically significant sites.
- Join an interactive environmental egroup: I'm starting one! Just send me an e-mail requesting to join, and I'll add your name to it. Share local environmental concerns, and get the text of this column early and online! I'll sign off now, but check out the paper recycling/reduction tips on the right.



*Environmentally yours,
Polly Lee Knowlton Cockett
plknowlton.cockett@home.com*

Softball News

BATTER UP!

The 2001 softball season is approaching fast!

Ladies community softball association is looking for players and teams (age 13 and up).

Level of play:
Intermediate "C" and above.

Season begins soon!!

Interested?

Please call

Tracy at 248-6754 or

e-mail pgschaffer@home.com.



Volunteer

CRHA Home Care Volunteer Program

Volunteers are needed in the community to visit lonely seniors.

Brighten someone's day!



If you have an hour or two to help, please call the CRHA Home Care Volunteer Program at 228-7480.

Brentwood Community News

Environment News

Improve your recycling! Here are some tips direct from the Union of Concerned Scientists:

OK, you already recycle paper, but you know that's not enough. Here are some additional things you can do:

- 1) Close the recycling loop: buy products *made from* recycled paper. Look for at least 50 per cent post-consumer waste (PCW) paper — or tree-free paper.
- 2) Reduce consumption. a) Use paper's *two* sides. b) Write notes on scrap paper rather than fresh pads. c) Keep your e-mail electronic. Don't print unless necessary. d) Switch from paper to cloth napkins (nicer looking, too). e) Clean up with rags and sponges, instead of paper towels.
- 3) Stop junk mail. Write letters to companies that continue to send you junk mail requesting that they stop. Get your name off most credit card mailing. Check the box that says "Do not rent or exchange my name" when placing orders and filling out forms. Don't fill out product warranty cards — they're just a way of getting your address. Your warranties are usually valid without them as long as

you have your receipts. (If in doubt, call the company.)

- 4) Sign up for automatic payment of your monthly bills.

By wasting less paper, you'll reduce the pollution associated with paper production (especially from dioxins) while preserving forests and the diversity of life within them. Since forests soak up the main gas responsible for global warming (carbon dioxide), you'll help maintain the climate as well.

Note that you can do much more by reducing paper waste at the office.

The Union of Concerned Scientists is a partnership of citizens and scientists working to preserve our health, protect our safety, and enhance our quality of life. Since 1969, we've used rigorous scientific analysis, innovative policy development, and tenacious citizen advocacy to advance practical solutions for the environment.

Union of Concerned Scientists,
<http://www.ucsusa.org>.



For related information, see these pages:

Tackling a house full of paper

<http://www.coopamerica.org/woodwise/consumer-guideathome.htm>

Nonwood

<http://www.nonwoodpaper.com/nonwood.htm>

How to goet off a mailing list

<http://www.the-dma.org/consumers/offmailinglist.html>

Stopping junk mail at home

<http://www.ciwmb.ca.gov/WPW/Home/junkmail.htm>

Protecting forest and slowing climate change

<http://www.ucsusa.org/environment/forests.html>

Reduce business junk mail

<http://dnr.metrokc.gov/swd/nwpc/bizjunkmail.htm>

Cutting paper

<http://eetd.lbl.gov/paper/index.html>

Office paper reduction

<http://www.ciwmb.ca.gov/BizWaste/OfficePaper/>

A how-to guide for buying and using greener paper

http://www.edf.org/pubs/EDF-Letter/1996/Jan/h_greenpap.html



We care for you

Country Hills Medicentre
220, 5149 Country Hills Blvd.
Ph: 241-8848

Crowfoot Corner Medicentre
217, 150 Crowfoot Cres. N.W.
Ph: 241-8900

Open 7 Days a Week

No Appointment Necessary

J.S. Investigations

Private Investigators

- Missing persons
- Under cover agents
- Marriage infidelity
- Employee theft / loss prevention
- Inventory shortages
- Surveillance, manned / electronic
- Background checks, personal / corporate
- Family investigations / youth surveillance substance abuse
- No charge initial consultation

Confidentiality assured

520-1878 24-hours

Licensed and Bonded by Alberta Justice

Brentwood Community News

Science Essay Winners

HOORAY!!! WE DID IT AGAIN!

SIMON FRASER STUDENTS WIN SCIENCE ESSAY CHALLENGE

Indomitable Simon Fraser students slaved away, day and night, writing and re-writing scientific essays for The Calgary Herald/Petro Canada Science Essay Challenge. Organized by the Calgary Science Network, this competition has been inspiring young minds for the past decade.

Students from all over the city submit competition quality essays based on a variety of topics. This year, themes included scientific inventions, space missions, microorganisms and even global warming. The panel of specialized judges had their work cut out for them as they sifted through piles of high caliber essays, painstakingly analyzing each and every one before moving on to the next. Once all of the essays had been thoroughly evaluated, it became clear that our local junior high school had cashed in with several winners!

Congratulations to all participants in The Calgary Herald/Petro-Canada Science Essay Challenge and an extra special HOORAY for the following Simon Fraser students:

Grade 7:

1st place: May Choi

2nd place: Brianna Brandon

3rd place: Iris Wong

Honorable Mention: Jennie Wong

Grade 8

1st place: Shayne Shapkin

2nd place: Michael Swanberg

Honorable Mention: Tara Wright

Engineering Award: Michael Swanberg



**Our fearless leader:
Mrs. Martin**



**Simon Fraser students display
their awards and trophies.**

As a participant and a winner in the contest myself, I have three things to say about the challenge. First, I would like to thank Mrs. Martin, Ms. Doppmeier and Mr. Neale for all of their dedication and enthusiasm. Second, I think the science essay challenge gives us students an opportunity to find out just how much we can achieve when we focus on a single goal, and third, if you happen to see an armored truck cruising the streets of Brentwood, it is probably just our local science teacher, Mrs. Martin, trucking the school's winnings to Simon Fraser!

*Shayne Shapkin
Simon Fraser student
and Grade 8 Winner*

Look for winning essays in this and future issues of the *Brentwood Bugle*.

Please see pages 6-10 for more Science Essay News

CIVIC CENSUS AND ENUMERATION

Starting April 1st, 2001 Canvassers Will Be Going Door to Door

For Information Contact
The City of Calgary
Election & Information Services Office
221-3850



**THE CITY
OF CALGARY**
ELECTION & INFORMATION
SERVICES OFFICE



Brentwood Community News

Science Essay Winners

HOORAY!!! WE DID IT AGAIN!
SIMON FRASER STUDENTS WIN SCIENCE ESSAY CHALLENGE



The Grade 7 winners.



The Grade 8 winners.

Please see pages 8-10 for more Science Essay News

Get some fresh experience!

At Calgary Co-op, we take pride in the freshness of our food, and the excellent quality of our people. If you're interested in joining a top team, get your career on track now. Canada's most successful retail co-operative is on the grow, with fresh, exciting opportunities throughout our 18-centre network.

We need high-potential individuals for positions at all levels in our Food departments and Gas Bars. There are also several openings for Pharmacists and Pharmacy Technicians.

We're particularly interested in people with flexible schedules for daytime, evening and weekend shifts. Part-time employees can arrange to work a guaranteed minimum number of hours each week, with a comprehensive benefits package. All Calgary Co-op employees benefit from training programs and a "promote from within" policy that offers plenty of room for advancement.

If you're a friendly, bright, enthusiastic person who understands the value of first-class customer service, stop by any Calgary Co-op Customer Service desk and check out our fresh opportunities.

CO:OP

Visit us at www.calgarycoop.com

They are Everywhere!

By May Choi

Bacteria are believed to be one of the simplest, smallest and oldest life forms on Earth. As one of nature's varied and most successful organisms, bacteria have been able to adapt to almost every environment on Earth. They are everywhere! At this very moment, unnoticed by ourselves, bacteria are on our skin, inside our mouth and within our intestinal tract. Bacteria live in and on all sorts of things: water, food, soil, wood, paper, oil and the air we breathe. They can be found in three main shapes. Usually, bacteria are too small to be seen without the aid of a microscope.

Everyday, we battle with bacteria! From the time we wake up in the morning, we do many things in attempt to get the upper hand in the bacteria war. We brush our teeth, cook our food, wash our hands, and take showers to avoid contact with bacteria. When bacteria get the upper hand, they cause diseases. These diseases include cholera, gonorrhoea, leprosy, pneumonia, syphilis, tuberculosis, typhoid fever, and whooping cough (1). Many of these diseases are rarely seen in developed countries like Canada because of our living standard.

When we mention the word bacteria, we usually think about the negative aspect of bacteria. Bacteria can cause diseases. To be more precise, these bacteria should be described as pathogenic bacteria. Fortunately, science has helped us understand these bacteria, how they reproduce and cause illnesses. As a result, we have developed antibiotics and vaccines to combat illness caused by bacteria. Far more important, though, is that science makes us understand the importance of washing our hands after going to the bathroom, keeping uncooked food refrigerated and providing us with clean drinking water.

There is no doubt that we are living longer and healthier lives, at least in part due to our gaining the ground in this man-bacteria war. However, the "system" against these pathogenic bacteria can break down and cause disastrous consequences (2). Recently, a communication breakdown between government officials and the public about E.Coli contamination in local drinking water left several people dead and many more ill from E.Coli infection in Walkerton, Ontario (3).

On the other hand, science itself can be the evil in causing serious bacterial infections. In recent years, new strains of super-bugs, which are resistant to antibiotics, have been discovered in many hospitals.

Scientists believe that the abuse and overuse of antibiotics has caused these bacteria to develop resist-



May Choi (centre front) is surrounded by her biggest fans.

ance to antibiotics (4). Therefore, the important lesson to learn is that we must constantly keep vigilance against the system failing to provide us protection against the pathogenic bacteria. We should not abuse or overuse the tools we use against them to fight bacteria.

Bacteria play an important role in the balance of nature. Through decay and decomposition, bacteria attack dead organic matter and break it down. Decomposition releases nitrogen and nutrients back into the soil, keeping soil continuously fertile. Therefore, bacteria are among nature's most important recyclers. Ultimately, life on Earth would be very crowded without bacteria.

Bacteria also provide us with many benefits. We wouldn't have yogurt, cheese and even chocolate if it weren't for bacteria. The action of the bacteria can also be used to make sauerkraut. Bacteria play a key role in the pickling process as they do in making wine and vinegar. Waste in the sewer system is also broken down by bacteria.

Whether they are good or bad, bacteria occupy a unique place on our planet. Though they cannot easily be seen, each tiny bacteria struggles, just as we do, to survive in the complex but beautiful natural world. We need to learn to respect the pathogenic bacteria and we need to be thankful for bacteria, which help make our lives better.

(1) Douglass A. Roberts, Science Directions, John Wiley & Son's Canada Ltd.

(2) CTV (NFCN) News, Channel 4

(3) CTV (NFCN) News, Channel 4

(4) Edward R. Ricciuti, Microorganisms: The Unseen World, a Black Press Book, 1994.

Extremophiles:

Boldly going where no organism has gone before.

By Shayne Shapkin

Would you plunge into a pool of boiling water? Would you shower under a stream of sulfuric acid? If you were invited to take a deep breath of fresh ammonia, would you do it? Or, would you prefer to sunbathe on a frigid Antarctic beach? Most sensible humans would go out of their way to avoid all of these activities. As a rule, the majority of life forms on this planet prefer to make their homes in a relatively narrow and safe range of environmental conditions. However, there is an interesting exception to this rule. A fascinating group of incredibly hardy microorganisms live, reproduce and even thrive in extremely harsh environments. They can be found in places that used to be considered sterile: deep-sea hydrothermal vents, Antarctic sea ice, Egyptian soda lakes or pockets of sulfurous gasses. These microbes are known as extremophiles (1) and they have caught the attention of leading-edge bio-technical researchers around the globe.

The curiosity of the scientific community has been piqued by the survival mechanisms that allow extremophiles to bound in brutal conditions. Normally, microorganisms that live in harsh environments are at risk of experiencing damage to their DNA and other essential structures. However, special molecules that exist inside their cell membranes enable many extremophiles to thrive in severe habitats. These molecules prevent potentially destructive environmental elements from entering the cell.

The protective molecules that allow extremophiles to make their homes in punishing habitats are enzymes. An enzyme is a protein created by an organism's cells that stimulates necessary chemical reactions without altering the protein itself (2). Essentially, an enzyme is a



Shayne Shapkin and his dad enjoy the awards ceremony.

biological catalyst (3). All cells have enzymes, however, the ones in extremophiles are unique because they are able to exist, without damage, in harsh environments (4).

Scientists are fascinated by the enzymes in extremophiles (extremozymes), because these exceptional molecules continue to remain active when other enzymes are destroyed. Illustrating this is the laboratory process that is used to identify genetic diseases. It requires an enzyme to initiate a chemical reaction during a period of alternating hot and cold temperatures. The original enzymes used in this procedure were damaged by the temperature extremes and had to be introduced manually by technicians, alternating between the hot and cold steps of the process. This was costly and time-consuming. Fortunately, a temperature tolerant extremozyme has eliminated the manual portion of the procedure, and genetic identification of diseases became more accurate, more efficient and more affordable.

Different classes of extremophiles produce different

Continued on page 10



Fun to Give. Fun to Receive. Fun to Eat!

A Candy Bouquet Makes a Great Gift!

Candy Bouquets can be created to reflect any theme. Let us custom create a candy bouquet for your special occasion- Birthday, Anniversary, Get Well, New Baby, Thank You, Just Because...or bring in your own container for your one-of-a-kind gift giving needs.

See you soon at the Candy Bouquet!

We Deliver 210-0421

Dalbrent Shopping Centre - 102, 3604 - 52 Ave. N.W.



HOFFMAN & WOLK



**Dr. Barry D. Hoffman
Dr. Ronald P. Wolk**

Certified Specialists in
Orthodontics & Dentofacial
Orthopedics
• Children • Adolescents • Adults

286-2402

201 Northland Professional Bldg.
4600 Crowchild Trail NW

www.dentmedia.com/dr/bhrw • braceshw@home.com
Morning and Afternoon appointments available until 4:30pm

Brentwood Community News

Science Essay Winners

Science Essay, continued from page 9

enzymes, which benefit humans in a variety of ways. They assist many sectors of industry, ranging from the implementation of DNA fingerprinting to the creation of stone-washed denim. They aid in the production of antibiotics and they are used to enhance the grease cutting qualities of laundry detergents.

One class of extremophiles is known as "thermophiles." These are heat-loving microbes that enjoy their scorching environments so much that they cannot even reproduce in temperatures below 50 degrees Celsius. One of the most well known thermophiles is *Thermus aquaticus*. It is responsible for the creation of the Polymerase Chain Reaction (PCR) (5). PCR is the used for DNA fingerprinting, medical diagnoses (6), and screening for genetic susceptibility of certain diseases (7 & 8). Other heat-loving microbes are also employed extensively in commercial use. For instance, one thermophilic enzyme aids in the production of cyclodextrins. Cyclodextrins increase the amount of a medicine that a human body can absorb and use, as well as disguise the acrid taste of some foods or medicines.

The second variety of extremophiles are "psychrophiles." These cold-loving microorganisms can survive in icy temperatures such as those found in the Antarctic Sea. Enzymes extracted from psychrophiles are valuable to industries that use refrigeration in their day-to-day operations, such as food manufactures. They are useful to companies who are interested in improving a laundry detergent's ability to be effective in cold water.

Acidophiles are a type of extremophile that thrives in highly acidic habitats. Many acidophiles can survive in acid more powerful than vinegar. Some of these amazing microbes even enjoy stomach fluids (9). An intriguing use for acid-tolerant enzymes involves a process that increases the digestibility of animal feed. This procedure results in lower cost and lower grade food sources that can then be digested more easily when nourishing livestock. Ultimately, this application of acidophilic enzymes may be used to help alleviate the problem of world hunger for humans.

Also useful are alkaliphiles, which thrive in alkaline environments.

Alkaliphiles prosper in carbonate-laden soil and soda lakes. The discovery of alkaliphiles caused a great deal of commotion among detergent makers around the globe. Detergent requires enzymes that can break down dirt and food stains in alkaline environments and temperature extremes. Since alkaliphiles love these conditions, they fit the bill perfectly.

Halophiles are the last variety of extremophiles that

are currently being used by industry. They are resistant to saline (salty) environments. Scientists are fascinated by one possible use for these salt-resistant organisms. Engineers are experimenting with a process that increases the total quantity of oil extracted from crude oil wells. There is hope that this may eventually lead to the use of halophilic enzymes being used to clean up oil spills.

The scope and variety of extremophiles on our planet are stimulating the minds of biochemists for a variety of reasons. Some researchers are employing these super efficient catalysts to increase productivity and lower costs. Others are inventing entirely new procedures that improve medical processes or repair environmental disasters. As laboratories everywhere jump on the extremophile bandwagon, new respect is developed for these tiny microorganisms. This admiration will spread through the general public. People will begin to understand the valuable role micro-organisms play in our everyday existence. Perhaps this will lead to a decrease in human exploitation of all levels of the natural environment. In a world where microorganisms are being over-killed by anti-bacterial soaps, as well as excessive use of antibiotics and fungicides, this is 'extremely' good news.

1. Adams, M.W.W. and Kelly, R.M.M., Chemical and Engineering News, pages 32-42, December 18, 1995.

2. Funk and Wagnalls Standard College Dictionary, p 443, Fitzhenry & Whiteside, Toronto, 1974

3. A catalyst is a substance that causes a chemical reaction. The catalyst itself is not changed by the chemical reaction.

4. These enzymes are known as extremozymes because of their extraordinary ability of existing in environmental extremes.

5. In PCR, a portion of DNA is repeated until a large supply of it is produced. This process involves a change of temperatures. Since the introduction of thermophile enzymes, PCR technology has become automated.

6. HIV diagnosis uses heat-loving extremozymes in PCR technology.

7. This includes screening for genetic susceptibility to certain kinds of cancer.

8. Scientific American Website, Extremophiles, April, 1997

9. Scientific American Website, Extremophiles, April, 1997