



Bay Area Science and Engineering Fair

BASEF

2004

SPONSORED BY THE ONTARIO TRILLIUM FOUNDATION

Note: BASEF 2004 will be held at Mohawk College, Fennell Campus

Fair Dates: March 31st to April 3rd, 2004

Mohawk College, Fennell Campus, Hamilton

Project Registration: February 9th – March 1, 2004

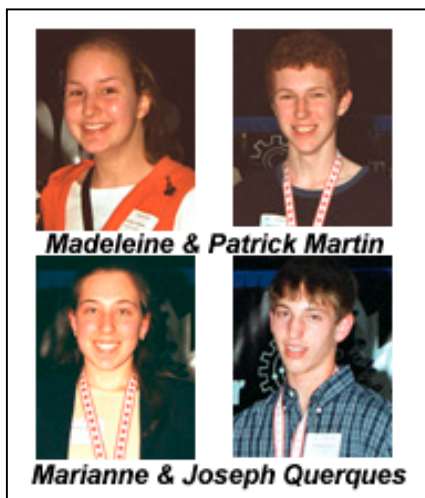


All in the Family!

Two families at the BASEF 2003 awards ceremony had reason to be doubly proud. Siblings Madeleine and Patrick Martin, and Marianne and Joseph Querques won all expense paid trips to the Canada Wide Science Fair (CWSF) in Calgary. These students prepared and presented four amazing projects in the junior and intermediate divisions.

When asked about the secrets of their success, Madeleine and Patrick's mother Michelle had this to say. "Around our house, we've always encouraged the kids to look at the world around them with curiosity, and pointed out the science in everyday situations: the chemistry involved in baking, what happens when seeds germinate, how the computer works, how their little brothers and sisters grow and learn from infancy onward. These things become part of dinner conversations, and whenever someone has a science fair project on the go, then this becomes a part of daily family conversation too." Michelle also offered the following tip. "We're on a tight budget, so whenever Patrick and Madeleine undertook a science fair project that would involve some expense, they

would ask relatives for help in defraying some of their costs, in lieu of Christmas and birthday presents." The Martin family had some inkling of the work involved



in preparing for national competition. Patrick attended CWSF 2002 in Saskatoon.

With seven younger siblings, Madeleine and Patrick had a fuller schedule than most of the other students preparing for Calgary. They enjoyed the friendly brother-sister competition and meeting students from across Canada. According to Madeleine, the opportunity to travel, see a huge variety of projects and share ideas made all of the work seem worth it.

Marianne and Joseph's mother Mary, attributes their success to the fact that they both really enjoyed the research they were doing. It's important for students to pick a topic that interests them. "Assisting two children to prepare for national competition was hectic, but their excitement about going to CWSF far outweighed any extra work they took on."

Marianne and Joseph enjoyed their CWSF experience, especially being able to spend time with the new friends they had met.

All four students are already busy with their projects for BASEF 2004. Award winning projects take planning and time. It's not too late to select a topic and begin researching.

Both families are grateful to all of the BASEF sponsors and the BASEF mentors who helped them prepare for the Canada Wide Fair and who chaperoned them in Calgary.

BASEF is proud of the accomplishments of the Querques and Martin families and look forward to welcoming them back for BASEF 2004. In addition to the Martin siblings, there are two more Querques family members waiting in the wings!

The BASEF 2004 Organizing Committee is pleased to welcome back our Honourary Co-Chairs for BASEF 2004.

A Message from our Honourary Co-Chairs: Mayor Wade and Chairman Savoline

We're pleased to be returning as the Honourary Co-Chairs of the Bay Area Science and Engineering Fair for the third consecutive year. This event is a great opportunity to promote the talents of our young scientists and engineers.

Now in its 44th year, BASEF 2004 will be held at Mohawk College from March 31st to April 3rd, 2004. We encourage all Grade 7 to 12 students from Hamilton, Halton, Brant, Haldimand and Norfolk to enter the competition, and all parents, teachers, schools and school boards to support our children in this initiative.

We also ask for the support of our local businesses and community organizations.

Today's technological entrepreneurs are tomorrow's skilled work force. And the need is great! In fact, the forecasts for our municipalities alone show that over the next 10 years, thousands of technical personnel will be needed to fill new positions and those vacated by retiring employees. We can expect this demand to be the same across Canada for years to come.

Technology is advancing everyday and we must encourage our young people to develop the needed skills to pursue careers based in science and technology. This is one of the fundamental objectives of BASEF.

Aside from attractive career opportunities, there are other reasons for students to be interested. Science Fair

competitors can share their ideas and thoughts with other bright, like-minded students from our communities, and are eligible to win a variety of great prizes. These include cash, scholarships, trophies, and grand prize trip

students from more than 40 countries to compete for the highest awards and millions of dollars in prizes. Over the last few years, our municipalities have consistently produced top winners at both these fairs. We want to see these great results again this year. Students, teachers and parents; the time to get started is NOW! See you at the Fair!



Mayor Robert E. Wade
City of Hamilton



Chairman Joyce Savoline
Region of Halton

Two handwritten signatures in black ink. The top signature is cursive and appears to read 'Joyce Savoline'. The bottom signature is also cursive and appears to read 'Robert Wade'.

awards in May 2004, to the Canada Wide Science Fair in Newfoundland or the Intel International Science and Engineering Fair in Portland, Oregon.

The Canada Wide Fair will bring together approximately 500 of Canada's best students, offering hundreds of thousands of dollars in cash and scholarships. The Intel International Fair will gather 1200 bright and motivated

BASEF would like to take this opportunity to say a special thank you to Mayor Wade who is stepping down as Mayor of Hamilton. It has been an honour and a pleasure to have you as our Honourary Co-Chair and we extend a sincere invitation to the new Mayor of Hamilton to continue in your path as our BASEF Honourary Co-Chair.

Ideas

Sometimes, the hardest part of the entire science fair is coming up with the idea for your project. Check out your local and school libraries for books on science fair projects and this list of web sites that might help you to generate your own ideas for a really great project. A good place to start is the results page from BASEF 2003. There is a picture of every winning project along with an abstract.

- http://basef.mcmaster.ca/2003/results/?page=full_results
- <http://school.discovery.com/sciencefaircentral/>
- <http://sciencefairproject.virtualave.net>
- <http://www.ipl.org/div/kidspace/projectguide/>

Consider Projects Related to These Special Awards

Over \$14,000 in Special Awards were awarded to students at BASEF 2003.

Halton Regional Chairman's Award for Student Excellence

Prizes: \$300 and certificates to each of three projects. Criteria: Deserving projects by Halton students, any category, any level.

City of Hamilton Mayor's Awards

Prizes: 1st: \$500, 2nd: \$300, 3rd: \$200. Criteria: Deserving projects by Hamilton students in the Biotechnology category

Acquired Brain Injury Awards**

Prizes: 1st: \$75, 2nd: \$25. Criteria: Two projects relating to the brain, especially acquired brain injuries, their causes or therapies

Ambitious City Toastmaster Leadership and Communications Awards:

Prizes: \$25 to each of two projects. Criteria: Leadership in innovative research and communication clarity.

Artistically Inspired Display Award:

Prize: \$200. Criteria: Most creative display

Bell Canada Computer and Communication Awards:

Prizes: 1st: \$150, 2nd: \$100. Criteria: Projects regarding communication between people, machines, or between people and machines, any level.

Canadian Finishing Systems Award:

Prize: \$250. Criteria: Best project in Earth and Environmental, any level.

Canadian Institute of Mining & Metallurgy Hamilton Branch Awards:

Prizes: 1st: \$100, 2nd: \$50, 3rd: \$25. Criteria: Projects relating to mining and metallurgy, any level.

Canadian Nuclear Society Awards:

Prizes: Two \$100 each for intermediate or senior levels and two \$ 50 each for junior level
Criteria: Projects relating to nuclear, energy or climate sciences.

Cancer Assistance Program Awards:

Prizes: \$50, \$35, \$30. Criteria: Outstanding projects related to cancer prevention.

Chemical Institute of Canada, Hamilton, Awards: **

Prizes: Three \$100 awards. Criteria: Projects related to chemistry, chemical engineering or chemical technology

Dr. Colin J.L. Lock Chemistry Award:

Prize: \$50. Criteria: Project demonstrating the best application of chemistry.

The DaVinci Awards:

Prizes: Two \$100 prizes. Criteria: Best demonstration of the use of the scientific method.

Dr. M. Doyle Award:

Prize: A trophy for the winner's school, a plaque and \$100 to the winner. Criteria: Best biology project.

Dofasco Awards:

Prizes: Seven \$100 awards. Criteria: deserving projects any level related to engineering, process automation, information technology, innovation and creativity, by products utilization, market development, research development.

Eastman Kodak Photography Award:

Prize: Camera. Criteria: Project best demonstrating the use of photographic or digital imaging to gather data, solve a problem or explain the essence of a science project.

Electrical Construction Association of Hamilton Award:

Prize: \$150. Criteria: Project creatively displaying the best, safest use of electricity.

Hamilton Academy of Dentistry Awards:

Prizes: \$50, Junior, \$250, Intermediate, \$ 200 and \$1000 scholarship, Senior. Criteria: Projects related to oral health, enhancement of dentistry.

Hamilton Steel Environmental Award:

Prizes: \$75 to each of three projects. Criteria: Projects addressing environmental issues of concern to Hamilton's steel industry.

Hamilton Utilities Corporation/Community Energy Award:

Prize: \$300. Criteria: Project that best demonstrates "green source" electricity production or efficient electrical energy use.

Intel Excellence Awards:

Prizes: \$200 US to each of two projects. Criteria: Top computer science project and top Environmental Science project, intermediate or senior level only.

Prizes: Certificates. Criteria: Intermediate and senior projects in materials science, meteorology, geoscience, optical science, corrosion, engineering, physics or chemistry.

McMaster Engineering Society Award:

Prize: \$250. Criteria: Best junior engineering project.

McMaster Nuclear Reactor Award:

Prize: \$250. Criteria: Deserving project related to radiation sciences.

McMaster Science & Engineering Tuition Awards:

Prizes: Five \$500 tuition awards on admission to Faculty of Science or Engineering. Criteria: Excellent science or engineering projects.

Mechanical Contractors Association of Hamilton Award:

Prize: \$250. Criteria: Best intermediate or senior engineering project.

Mohawk College Engineering Technology Awards: **

Prizes: Nine \$50 awards. Criteria: civil engineering, transportation, building sciences, chemical and environmental engineering, computer application, industrial engineering, hydraulics, pneumatics, metal casting.

Prize: \$100. Criteria: Deserving intermediate or senior project in applied chemistry.

Mohawk Mathematics Awards: **

Prizes: \$75 to each of two projects. Criteria: Projects in mathematics division or projects demonstrating a thorough understanding of statistics, any level.

National Science & Engineering Research Council (NSERC) Awards:

Prizes: \$200 to each of two projects. Criteria: Projects demonstrating innovative and creative research.

Primary Fluid Systems Awards: **

Prizes: 1st: \$250, 2nd: \$150, 3rd: \$100.

Criteria: Deserving projects, junior engineering.

Prizes: 1st: \$250, 2nd: \$150, 3rd: \$100

Criteria: Deserving projects, intermediate engineering.

Prizes; 1st: \$125, \$75, \$50 for each of the following categories and levels: Junior and Intermediate physical sciences and Junior and Intermediate earth and environmental.

Professional Engineers of Ontario (Hamilton Chapter) Awards:

Prizes: 1st: \$150, 2nd: \$125, 3rd: \$75. Criteria:

Top projects using the application of engineering skills, any level.

Procor Awards:

Prizes: Junior: \$50, Intermediate: \$100, Senior: \$150. Criteria: Excellent engineering projects.

Ramanujan Mathematics Awards:**

Prizes: \$100 each for up to three projects.

Criteria: Projects demonstrating a strong mathematics base.

Royal Botanical Gardens Award:

Prize: \$100 gift certificate for the RBG shop and a one year family membership to RBG.

Criteria: Best project in botanical or environmental sciences.

Safety Management Systems Software Award:

Prize: \$100 and a plaque. Criteria: Project that incorporates the innovative integration of programming code to analyze data or operate a piece of equipment.

Scientific American Subscription Awards:

Prizes: Five 12 month subscriptions. Criteria: Deserving projects any level.

Science Teachers Assoc. of Ontario Awards:

Prizes: \$75 to each of two projects. Criteria: Projects best demonstrating the use of the scientific method, junior level.

Tinnerman Palnut Canada Corporation Award:

Prize: \$200. Criteria: Best engineering project.

William D. Galbraith Memorial Award:

Prize: \$100. Criteria: Best project in pure or applied chemistry; intermediate or senior projects only.

Zonta Club of Hamilton:

Prizes; \$300 will be shared by a limited number of projects. Criteria: Outstanding projects by females, any category, any level.

All of these awards are made possible by our Special Award sponsors. If you know a company, foundation or individual who might be interested in encouraging our students by donating a special award, please contact us at basef.fundraising@mcmaster.ca.

Awards confirmed for 2004 are indicated by **

For Teachers

BASEF OUTREACH is currently in the process of producing a teacher's resource document with an accompanying student handbook to assist teachers and students in developing "good" Science Fair Projects. These resources will be available in both Power Point and hard copy format. The Draft copies of these documents are in the final stages, and they will be available shortly for some "test runs" in a number

of selected schools in the area.

Teachers may contact BASEF OUTREACH for additional information. This project is funded through the Ontario Trillium Foundation.

Our BASEF Outreach Chair will be available in early 2004 for on site visits to schools and classrooms. These visits are intended to promote and assist teachers and students in implementing "Project Based Science".

For Parents

There is a brand new section on our website, especially for parents. The "Parent to Parent" article provides general information about the day by day activities of the fair. The article "Project Basics for the Bewildered Parent.....I'm not a scientist, how can I help?" was designed to help parents assist their children in preparing science projects.

SPONSORSHIP

In 2003, BASEF sent our maximum number of 20 students to Calgary, Alberta to compete in the Canada Wide Science Fair (CWSF) and our maximum number of 4 students to Cleveland, Ohio to compete at the Intel International Science & Engineering Fair (IISEF) as the result of the generosity and commitment of our sponsors. The host sites for 2004 are St. Johns, Newfoundland for CWSF and Portland, Oregon for IISEF.

BASEF's ability to make these tremendous opportunities available to our science and technology students can only be done through the generosity of sponsors.

To stage a first class fair, which our students so richly deserve, and to send the maximum students again, **WE NEED YOUR SUPPORT.** Do you know a company, foundation or individual who might be interested in supporting our bright young minds in science and technology?

If so please contact us at basef.fundraising@mcmaster.ca.

BASEF also has a wide variety of in-kind service needs such as printing, meals, graphic design, activities for activity day (to name a few). There are many ways to help. Please contact us with your ideas or suggestions.

WHO WANTS TO GO TO THE INTERNATIONALS?



We will be looking for up to 4 talented people in grades 9 – 12 to represent BASEF in Portland, Oregon in May 2004. We will be looking for two worthy individual project finalists and one team project to compete at the Intel International Science and Engineering Fair.

Categories include: Behavioral & Social Sciences, Biochemistry, Botany, Chemistry, Computer Science, Earth & Space Science, Engineering, Environmental Sciences, Gerontology, Mathematics, Medicine & Health, Microbiology, Physics, and Zoology.

More than 600 individual student and team awards are presented. Cash awards are \$3000, \$1,500, \$1,000 and \$500 US in each of the 14 categories. In addition, the Intel Best of Category award of an additional \$5,000 scholarship and an Intel architecture-based mobile computer goes to the top-scoring student in each category. The top three finalists selected by Intel judges each receive a \$50,000 college scholarship and an Intel architecture-based mobile computer. Additional student awards worth more than \$1.5 million U.S include: scholarships, summer internships, scientific field trips and laboratory equipment. So, start working on your project ideas now! Be sure to check the BASEF website to complete the appropriate application and approval forms. Some paperwork needs to be completed before or near the beginning of your research.

The KEY to Innovation Interesting IISEF Facts

- ◆ **Prizes can total up to \$5 million CAD**
- ◆ **Over 1200 competitors and 1200 judges are expected to participate in IISEF 2004**
- ◆ **2004 marks the 55th year for IISEF**
- ◆ **IISEF is the world's only international science project competition for high school students**

BAY AREA SCIENCE AND ENGINEERING FAIR 2004

REGISTRATION MADE EASY!

FUN TO PARTICIPATE and REGISTRATION is FREE!

The Bay Area Science And Engineering Fair 2004 is an experience that lasts a lifetime. This year BASEF 2004 will be held at Mohawk College in Hamilton from March 31st to April 3rd, 2004.

The 2004 Fair is open to students registered in grades 7 to 12 in schools within the regions of Hamilton, Halton, Brant, Haldimand and Norfolk including independent or private schools, as well as home schools. If your school conducts a science fair, you may only advance to BASEF through your school's fair. If your school does not conduct a science fair, you may enter into BASEF directly. We do require however that you still enter as a representative of your school and school board. All registrations from any source are subject to the "maximum number of projects" limits.

EASY TO ENTER

The BASEF attracts nearly 500 participants annually and is affiliated with the Canada Wide Science Fair (CWSEF) and the Intel International Science and Engineering Fair (IISEF) Twenty two of the top projects from last year's BASEF were sent to compete at these events.

All students in grade 7 to 12 who live in Hamilton, Halton, Brant, Haldimand and Norfolk are invited to show off their great ideas and creative ingenuity by registering.

Registration application forms for the BASEF 2004 will be available on-line at <http://basef.mcmaster.ca> starting Monday February 9th, 2004. Go to the Registration Instruction page, which has links to all necessary forms and information. **Please read the instructions through before you begin.**

You will be required to give all details about your project. Be sure to check the Rules and Safety and Ethical Guidelines on the website to be certain that your project meets all requirements. You will also be asked to give other information on things like any food allergies you might have or your choices for ACTIVITY DAY on Friday, April 2nd. See the article in this newsletter for information about ACTIVITY DAY.

More details about registration will appear at <http://basef.mcmaster.ca>, so please check out our website for upcoming announcements.

DATES TO REMEMBER








- A. **On-line Registrations**
Monday February 9, 2004 to Monday March 1, 2004
- B. **Registration Deadline**
Noon Monday March 1, 2004
- C. **BASEF 2004**
Mohawk College – March 31 – April 3, 2004

Fun and Educational!!

These are the two words that describe the activities that the Bay Area Science and Engineering Fair (BASEF) Activity Day Committee is organizing for this edition's ACTIVITY DAY on Friday, April 2, 2004. Activity Day is full of educational yet totally fun events. Still unsure whether to sign up? Here are the details:

The day begins with your 8:00 a.m. drop off at Mohawk College. First, you attend your morning activity (which you select at registration). Everyone regroups at Mohawk for lunch, and then you begin your afternoon activity. The day ends at 4:30 pm with your parents picking you up at Mohawk. Sound like a blast? It will be!

Some of the exciting activities we are working on include:

-  Metal Casting Foundry Tour
-  Web Page Design
-  Fitness Training in the Gym
-  "Come Get a Reaction" in the Chemistry Lab
-  Aesthetician Class
-  Dark Room Session: learn the mysteries of photography
-  Hiking the Dundas Valley Trails

And these are just a few...

As you can see, Activity Day is shaping up to become a great day with learning experiences and lots of fun. Of course, it's FREE for all science fair participants.

Sign up early! Attendance is sometimes limited. Registration begins February 9, 2004. Select your activities when you register for the fair at <http://basef.mcmaster.ca>.

**BASEF is currently looking into busing arrangements to transport Halton students to both Judging and Activity Day in Hamilton.

Volunteers Needed!

Volunteers make BASEF possible. We are in urgent need of chaperones for Activity Day. Please register on the BASEF website or via phone: 905-974-7975 in Hamilton or 905-693-7076 in Halton.

Every project exhibited at BASEF must pass a thorough safety check on set up day. **There are detailed rules posted on the BASEF website that every participating student should review.** Build your display correctly the first time to avoid disappointment! Every year, entire projects and/or accompanying props are turned away, adding unnecessary stress to our students.

Basic rules include the following:

- size, including height and width of the display
- construction material of the backboard
- how papers may be displayed
- biohazards including radioisotopes, bacterial cultures, fungi, molds
- toxic, flammable, dangerous chemicals including drugs
- allowable props on the table

Number One Violation – Home Grown Mold, Fungi, Bacteria

Growing molds on bread or culturing bacteria from toothbrushes have been popular experiments for many years. No matter how harmless the source may seem, the display of any microbiological material is prohibited. Instead, consider displaying pictures of your experiment. Alternatively, the material can be encased in a solid acrylic block (kits are available at hobby stores).

Judges are well aware of the safety rules and do not expect to see actual samples of what you managed to grow.

Number 2 Violation - The Shocking Experience

The stringent electrical equipment rules are in place to protect our students, judges and the viewing public from accidental shock. All AC equipment used in your display must have a functional 3-wire plug with a ground or be CSA approved. Extension cords, power bars and lighting must be CSA approved. Any projects using equipment with higher

voltage must be disabled for display at the fair.

Number 3 Violation – Not Just Paper in the Wind

BASEF complies not only with the safety rules regulated through our national organization but also the local fire codes of our municipality. All display board paper must be firmly adhered to the backboard with no loose or overlapping pages. This means that you cannot staple a set of pages and attach it to display board. The display board is meant to be a summary of your project. Complete details of your work belong in the accompanying notebook or binder.

Miscellaneous Rules for Display Props

Interesting projects often include additional components on the display table such as experimental models, photographs, equipment etc. Ensure that there are no dangerous moving parts, that sharp edges on glass, mirrors, metal, prisms etc. are protected and that any electrical equipment meets safety guidelines.

Avoid disappointment by checking out the safety rules before you build your display!

Project Category Changes

BASEF 2004 project categories have been changed to match those recently revised by YSF as follows:

Biotechnology
Earth & Environmental Sciences
Engineering & Computing Sciences
Health Sciences
Life Sciences (non human)
Physical & Mathematical Sciences

Opportunity for Calgary CWSF 2003 participants currently in grades 11 and 12

You are invited to apply for "Gene Research for a Week", a program that places high school students, during spring break, in the genetic research labs of some of Canada's top scientists.

Application deadline: Dec. 31, 2003.
For more information, visit the program's web site at:
www.cgdn.ca

BASEF Contact Info

Snail Mail:

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Email:

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Website

<http://basef.mcmaster.ca>

The BASEF 2004 Organizing Committee gratefully acknowledges the financial support of our *title sponsor*.



THE ONTARIO TRILLIUM FOUNDATION
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