BASEF 2014
54th Annual Bay Area Science and Engineering Fair
March 26 – April 1, 2014
Mohawk College

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Diamond Sponsors
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Primary Fluid Systems

Platinum Sponsors
The Hamilton Spectator
McMaster University

Big ideas.
Infinite possibilities.
Mohawk College welcomes all Participants in the 2014 Bay Area and Science Engineering Fair. Good luck!

Learn more mohawkcollege.ca

Proud Host of the 54th Annual BASEF

FUTURE READY
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Funding for BASEF 2014 sponsored by ArcelorMittal Dofasco is provided by ArcelorMittal Dofasco’s Corporate Community Investment Fund. The views and opinions expressed in this publication do not necessarily reflect those of ArcelorMittal Dofasco.
A MESSAGE FROM THE 2014 BASEF CO-CHAIRS

This is a year of both continued essential support from our many community sponsors and benefactors, and new support for student awards designed to promote renewed interest and participation in the Fair.

ArcelorMittal Dofasco has returned as BASEF’s title sponsor for the eighth year. We are thankful for the very generous funding provided by ArcelorMittal Dofasco’s Corporate Community Investment Fund to all aspects of the Fair. BASEF 2014 would not be possible without this. Together with over 30 other sponsors and benefactors, as well as over 30 Special Awards donors, they make it possible for BASEF’s students to excel in science and engineering.

This year the total value of merit awards, special awards, scholarships and trip awards is expected to top $175,000.

Primary Fluid Systems continues to invest in BASEF’s students, our leaders of tomorrow. They have sponsored the Fair at the Diamond Level for several years. Recipients of Gold, Silver, Bronze and Honourable Mention Merit Awards will recognize the Primary Fluid Systems name on their merit award certificates for years to come.

Mohawk College, also a Diamond sponsor, is hosting BASEF for the first time in its excellent new David Braley Athletic and Recreation Centre (DBARC). On behalf of the BASEF 2014 Organizing Committee we extend a special thank you to Mohawk College and its staff, who have been very generous with their time, energy and resources, and enthusiastic in their support.

BASEF’s new “Awards for Excellence in Science & Technology” are funded by a generous donor whose desire is to generate interest and encourage participation in the Fair. These 18 new $500 prizes, based on merit judging marks, will be awarded to the top 18 first time competitors who win $200 or less in other cash prizes. In addition, schools can win one of two $250 New School Awards. Funded by the same donor, who wishes to remain anonymous, these prizes will be awarded to the teachers from the two new schools with the best project scores.

This is the 54th year of operation for BASEF, whose mission is ‘to encourage young people in science and engineering’. We hope this year’s student exhibitors meet new friends, enjoy their experience, and capture the science fair passion that leads to new research and the discoveries of tomorrow. We congratulate each participant on a job well done and wish them the best of luck in their future endeavours.

BASEF’s motto “Big Ideas… Infinite Possibilities” is truly what the BASEF experience is -- to the students, judges, parents, award sponsors, and the many visitors to the fair.

BASEF is a volunteer driven registered charity. We acknowledge with thanks the huge efforts of this year’s Organizing Committee members who have dedicated countless hours toward making BASEF 2014 a success. Our thanks also to the over 250 volunteer Merit and Special Awards Judges and to the more than 100 other volunteers who help run registration, safety and other fair activities.

We are grateful to our Honourary Chair, Zach Douglas, who continues the tradition of community support to the BASEF vision. Zach is the President and CEO of McMaster Innovation Park (MIP), an entity affiliated with McMaster University. MIP offers research opportunities that develop from it being recognized as one of the best research parks in Canada for innovative, creativity, learning and research excellence aligned with the research strengths of McMaster University.

Be sure to attend the BASEF awards ceremony, this year at a new time, on Tuesday evening, April 1, at 7:00 pm in the McIntyre Performing Arts Centre at Mohawk College to celebrate our students’ successes.

Helen Barton
Co-Chair BASEF 2014

Kevin Hunt
Co-Chair BASEF 2014
BASEF 2014 ORGANIZING COMMITTEE

MOHAWK COLLEGE, BASEF 2014 HOST
Bob Carrington, Acting President
Cheryl Jensen, V.P. Academic

CO-CHAIRS
Helen Barton and Kevin Hunt

PAST CHAIR
Ray Kranayk

TREASURER
Eleanor O’Flynn, C.P.A., C.A.

REGISTRAR
George Geczy; Ass’t: Rob Lenjosek

JUDGE IN CHIEF
Neil Manmohan; Ass’t: George Geczy

SCIENTIFIC REVIEW
Cathy Hayman (Co-Chair), Dan Bowman (Co-Chair),
George Geczy (Co-Chair), Neil Manmohan (Judge in Chief),
Allison Boyd, Dr. Robert Brown, Rob Lenjosek, Donna
Stack-Durward, Jo-Anne Teoh

SPECIAL AWARDS COORDINATOR
Julianna Giancarlo; Ass’t: Jim Casey, David Reed

SAFETY
Neil Manmohan

FUNDRAISING
Sue Olynyk (Chair), Peter Child, George Geczy

STUDENT ACTIVITIES
Kevin Hunt

CANADA-WIDE & INTERNATIONAL CHAPERONES
CWSF: Dan Bowman (lead),
Stephanie Fazzari, George Geczy
IISEF: Cathy Hayman (Fair Director), Ming Chong

INFORMATION SYSTEMS
George Geczy, Gerard Chiasson, Ken Moyle

OFFICIAL FAIR PROGRAM
Lisa Camara

MOHAWK COLLEGE REPRESENTATIVES
Dana Jacobs, Peter Olynyk

SPONSOR REPRESENTATIVE
Sandy Walker

FACILITIES
Dan Bowman; Ass’t: Dana Bee

AWARDS AND CEREMONY
Gerard Chiasson (Chair), Wayne Bowdish, Neil Manmohan
MCs: Peter Olynyk, Cathy Hayman

“CHAMPIONS OF BASEF”
Ola Lunyk Child (Chair), Peter Child

OUTREACH
Peter Child (Chair), Allison Boyd, Ryan Buist, Ming Chong,
George Geczy, Ola Lunyk Child, Mark Mindorff, Vanessa
Scanga, Wuchow Than, Glen Whitwell

SPECIAL PROJECTS & YES INITIATIVE
Vanessa Scanga, Ryan Buist

VOLUNTEER RECRUITMENT AND COORDINATION
Glen Whitwell, Jim Monkelbaan, Dana Bee

PHOTOGRAPHY & GRAPHICS
Wayne Bowdish

MARKETING AND PUBLICITY
Helen Barton (Chair), Wayne Bowdish, Roslynne Crawford,
Deidre Date, George Geczy, Antonella Giancarlo, Glen
Whitwell

FOOD PLANNING
Dan Prowse

DISTRICT SCHOOL BOARD ADVISORS
HCDSB: Lorraine Boulos
HDSB: Ron Ballentine, Ingrid Munson
HWCDSB: Morris Hucal, Rob Lenjosek
HWDSB: Teresa Thompson
Six Nations (INAC): Alex Randall

COMMITTEE MEMBERS AT LARGE
Lauren Jewett, Joydeep Sengupta, Sandy Willett

STUDENT ADVISORS
Catharine Bowman, Mohammed Moahid, Alex Tomala

Bay Area Science and Engineering Fair
c/o Mohawk College
135 Fennell Ave West, Room F175
Hamilton, Ontario L8N 3T2
e-mail: basef@basef.ca
web site: www.basef.ca

Registered Charity: BN 11895 1565 RR0001
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BASEF OFFICE PHONE NUMBER
(905) 575-1212 ext 3751
Noon March 26 to 1:00pmMarch 29
ONLY
A MESSAGE FROM HONOURARY CHAIR, ZACH DOUGLAS

It is my pleasure as Honourary Chairperson to once again welcome you to the annual Bay Area Science and Engineering Fair (BASEF).

I know from my own experience how important events like this can be in awakening a love of science and engineering in young people. Through participation in BASEF students are exposed to science, engineering and technology in a very important manner. The hands-on, project-based approach to the practice of these disciplines leads directly to thinking innovatively. Ultimately, innovation leads to new solutions to the challenges we face and to new opportunities for growth, both personally and as a society.

The success of an event like this depends on the hard work of teachers, parents, and event organizers. I would like to acknowledge this and thank them for their commitment and efforts.

Finally, to all the students who are participating in the fair, I want to recognize your hard work and dedication. Congratulations and all the best in the future.

Zach Douglas,
President & CEO
McMaster Innovation Park

Mr. Douglas is the President of McMaster Innovation Park (MIP), an entity affiliated with McMaster University, which has a mandate to redevelop a 37 acre brown field industrial site and transform it into an internationally recognized, world class research and development park.

Since its inception, MIP has completed three buildings. The Atrium@MIP, the first completed building at McMaster Innovation Park is 4-level office, laboratory and conference facility. There are currently over 30 tenants in the building, including the United Nations University Institute for Water, Environment and Health. The CANMET-MTL research centre is dedicated to metals and materials fabrication, processing and evaluation. This second building houses the Canadian Government’s Materials Technology Laboratory. In the third facility, the McMaster Automotive Resource Center, hundreds of both private and public sector researchers, students and industry professionals are working to resolve serious issues facing the automotive industry and design the future of human transportation.

Prior to 2006 Mr. Douglas held leadership positions with Crown Investment Corporation of Saskatchewan and Saskatchewan Opportunities Corporation. Over the past 30 years, he has established relationships with the business, financial and economic development communities across Canada, and has worked closely with stakeholder groups to encourage collaborative approaches to economic development financing and business development.

Mr. Douglas holds a Bachelor of Law degree from the University of Saskatchewan.
SPONSORS – 2014

TITLE $15,000+
ArcelorMittal Dofasco

DIAMOND $10,000
Mohawk College
Primary Fluid Systems

PLATINUM $5,000 +
McMaster University
The Hamilton Spectator

GOLD $2,500 +
Lifetouch
Taylor Leibow Accountants & Advisors
Union Gas Ltd.

SILVER $1,000
Boehringer Ingelheim Canada
Canadian Linen & Uniform Service
City of Hamilton Economic Development Dep’t.
Esso Imperial Oil Foundation
Halton Catholic District School Board
Halton District School Board
Hamilton Chamber of Commerce
Hamilton Halton Construction Association
Hamilton-Wentworth Catholic District School Board
Hamilton-Wentworth District School Board
Hillfield Strathallan College
Investigative Science Inc.
John Deere Foundation
Ontario Power Generation- Nanticoke Station

BRONZE $500 +
BattleGoat Studios
D.E.N.M. Engineering Ltd
Hamilton Community Awareness
& Emergency Response

FRIENDS $100 +
Hamilton Wentworth Occasional Teachers
Optimist Club of Stoney Creek

BENEFACTORS - 2014

Through their personal donations, individuals support the BASEF. BASEF relies entirely on donations from corporate, organizational and personal donations to fund its operations. As Benefactors, individuals help to make the fair what it is. BASEF’s benefactor levels celebrate famous Canadian scientists and engineers.

Banting and Best Benefactors ($1000+)

Sir Frederick Banting and Dr. Charles Best were the co-discoverers of insulin used in the treatment of diabetes. In 1923, Dr. Banting was awarded the Nobel Prize in Medicine

Dr. Peter Child & Mrs. Ola Lunyk Child
Dr. Ranjan and Dr. Monalisa Sur*
Mr. David Walker*

Bondar Benefactors ($500+)

Dr. Roberta Bondar was the first Canadian woman to have flown in space as an international astronaut on board the Space Shuttle Discovery. Dr. Bondar is a trained physician, scientist, astronaut and photographer.

Mr. Peter & Mrs. Susan Olynyk

Polanyi Benefactors ($200+)

John Charles Polanyi won the 1986 Nobel prize for chemistry for using chemiluminescence of molecules to explain energy relationships in chemical reactions

Mr. John & Mrs. Eleanor O’Flynn

McGill Benefactors ($50+)

Elsie McGill was Canada’s first woman graduate in electrical engineering. She also held a master’s degree in aeronautical engineering. She is considered the first woman to be a designer of airplanes; During World War II her primary responsibility was the production of the Hawker Hurricane fighter aircraft.

Smith Benefactors (<$50)

Dr. Michael Smith won the 1993 Nobel Prize in Chemistry for discovering site-directed mutagenesis: how to make a genetic mutation precisely at a spot in a DNA molecule

BASEF’S ENDOWMENT FUND:
THE BAY AREA SCIENCE AND ENGINEERING FAIR FUND

In June 2012, BASEF established an endowment fund with the Hamilton Community Foundation (HCF) under their Agency Endowment Program. Contributions are invested by HCF and the income earned, net of management fees, made available for BASEF to support BASEF’s mission and goals. The endowment fund has grown to just over $20,000. It will become operational in support of BASEF’s long term sustainability when the amount in the fund reaches $25,000.

Please consider the BASEF Endowment Fund as part of your charitable giving. You may send a cheque designated for the BASEF Endowment Fund to BASEF, or send your donation directly to the HCF.

* Indicates these benefactors have made donations to the BASEF Endowment Fund
# BASEF 2014 SCHEDULE OF EVENTS

All at Mohawk College Fennell Campus

**Gymnasium** - David Braley Athletic Centre (DBARC)
**Theatre** - McIntyre Performing Arts Centre

## Wednesday, March 26 – On-Site Project Setup/Safety Check

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<th>Time</th>
<th>Activity details</th>
<th>Location</th>
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<tr>
<td>4:00 – 8:00 pm</td>
<td>Registration, set-up and safety checks</td>
<td>Gymnasium</td>
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## Thursday, March 27 - Student Activity Morning & Judging of Projects

<table>
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<tr>
<th>Time</th>
<th>Activity details</th>
<th>Location</th>
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<tbody>
<tr>
<td>8:00 – 9:00 am</td>
<td>BASEF students arrive for Morning Activity</td>
<td>Theatre</td>
</tr>
<tr>
<td></td>
<td>(Theatre Doors Open at 8:30 am)</td>
<td></td>
</tr>
<tr>
<td>9:00 – 9:05 am</td>
<td>Introduction – Sponsor Comments</td>
<td>Theatre</td>
</tr>
<tr>
<td>9:05 – 9:30 am</td>
<td>McMaster Engineering Venture / Leap Video session and interactive presentation</td>
<td>Theatre</td>
</tr>
<tr>
<td>9:30 – 10:10 am</td>
<td>Hamilton Amateur Astronomy Organization</td>
<td>Theatre</td>
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<td></td>
<td>John Gaureau’s Short Tour of the Universe</td>
<td></td>
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<tr>
<td>10:10 – 10:50 am</td>
<td>Keynote Presentation: General Motors Canada</td>
<td>Theatre</td>
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<td></td>
<td>Electrification of the Automobile – The Cadillac ELR</td>
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<tr>
<td></td>
<td>...going beyond the Volt – Paul Hewitt</td>
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<tr>
<td>10:50 – 11:15 am</td>
<td>The Journey from Idea to Profit</td>
<td>Theatre</td>
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<td></td>
<td>David Cox of CIBC Wood Gundy</td>
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<tr>
<td>11:15 am – noon</td>
<td>McMaster University Chemistry Show</td>
<td>Theatre</td>
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<td></td>
<td>Professors Randy Dumont and Paul Harrison</td>
<td></td>
</tr>
<tr>
<td>12:00 – 1:00 pm</td>
<td>BASEF students to bring their own bagged lunches. Students are not permitted to go elsewhere for lunch and must remain at their projects in the gym.</td>
<td>Gymnasium</td>
</tr>
<tr>
<td>1:00 – 4:00 pm</td>
<td>Judging interviews for BASEF students (BASEF participants must remain at their projects during judging)</td>
<td>Gymnasium</td>
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## Friday, March 28 – *Fair not open to the public or students*

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<td>9:00 – Noon</td>
<td>“Be a Science Fair Judge” Class Activity Pilot</td>
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<td>Two Grade 7 – 8 classes will be participating. This event is fully subscribed for 2014.</td>
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## Saturday, March 29 - Public Viewing

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<tr>
<td>9:00 am - 12:00 noon</td>
<td>Public Viewing - Projects are to remain in place until end of Public Viewing</td>
<td>Gymnasium</td>
</tr>
<tr>
<td>12:00 – 1:00 pm</td>
<td>Project take-down. All projects must be removed by 1:00 pm</td>
<td>Gymnasium</td>
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## BASEF 2014 SCHEDULE OF EVENTS (continued)

All at Mohawk College Fennell Campus

**Gymnasium** - David Braley Athletic Centre (DBARC)  
**Theatre** – McIntyre Performing Arts Centre

### Tuesday, April 1 - Awards Ceremony

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<td>5:15 – 6:30 pm</td>
<td>Champions of BASEF Dinner</td>
<td>By Invitation Mohawk</td>
</tr>
<tr>
<td>6:30 pm</td>
<td>Awards Ceremony seating opens</td>
<td>Theatre</td>
</tr>
<tr>
<td>7:00 - 9:30 pm</td>
<td>Awards Ceremony</td>
<td>Theatre</td>
</tr>
<tr>
<td>9:30 - 10:00 pm</td>
<td>Meeting with chaperones for trip winners and their parents</td>
<td>Theatre</td>
</tr>
</tbody>
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Thanks to our sponsors we're going places! **National & International Science Fair Competitors**

The BASEF Students and Volunteers gratefully acknowledge the support of all of our sponsors
The following emergency procedures apply to Mohawk College’s Fennell Campus. Please review and familiarize yourself with them so you know how to respond quickly and appropriately in the event of an emergency.

**EMERGENCY EVACUATION AND FIRE ALARMS**

1) At the sound of the alarm, go immediately to the nearest exit and leave the building.
2) Take a position away from the building. Remain outside until an “ALL CLEAR” has been given.
3) EXTENDED EVACUATION – You will be directed by Security and/or Fire Wardens to a sheltered location. If instructed, please move quickly and calmly to the designated location.

**PERSONAL SAFETY**

If you require immediate assistance for First Aid, Medical or Security reasons, contact Security Services by any of the following methods:

1) Dial Extension 55 on any College phone.
2) Emergency intercoms are located in the hallways throughout the College. Press the round button to speak directly to a Security Officer.
3) Bell pay phones have an emergency button identified by a yellow label. A sign above the phones identifies your location. Press the Emergency button and give your location to the Security Officer.
4) Outside Emergency Intercoms. These are recognizable by a blue light. Press the red button to speak directly to a Security Officer.

**LOCKDOWN AND HOLD AND SECURE**

1) If you hear a recorded announcement of a lockdown, immediately cease all activity.
2) REMAIN CALM. If you are able to do so, safely exit the building immediately.
3) **If you are in a hallway**, move to a room or other place of safety immediately.
4) **If you are in a classroom or office**, secure the doors, if possible, turn out lights, cover windows or pull shades. Remain quiet and out of sight, staying away from windows or doors.
5) Silence cell phones or other sound devices, stay quiet and await instructions. DO NOT open the door under any circumstances.
6) **If you are in an open area, such as Cafeteria, Library or Gymnasium**, follow the same steps as above. If there are no doors, take shelter under desks, tables, chairs or behind bookcases or other furniture or equipment.
7) END OF LOCKDOWN: a recorded announcement will be given by Security advising that the emergency situation outside the college has ended.
Wednesday March 26
Project setup in the Gym
4:00 pm to 8:00 pm
Student drop off at lot P10

Thursday March 27
Activity Morning in the Theatre
Students arrive 7:45 am to 8:30 am
Bus drop off/pickup at i Wing Loop
Student car drop off at Main Entrance
Project Judging 12:45 pm to 4:00 pm
in the Gym.
Parking in lot P10

Saturday March 29
Public Viewing in the Gym
9:00 am to 12:00 pm
Project takedown 12:00 noon
Parking in lot P10

Tuesday April 1
Awards Ceremony in the Theatre
7:00 pm to 9:30 pm
Doors open at 6:30 pm
Parking in lot P10
Congratulations on your decision to allow your child to participate in BASEF 2014!

For many students, BASEF 2014 is the first time they are rewarded for their academic endeavours. All BASEF student participants are rewarded with an enriching experience. Students get to participate both in Activity Morning and Judging. Along with a certificate of participation, students will come away with the experience of meeting new people - both judges and other top students - and with the official BASEF “goody” bag.

Many students and parents view science fair projects as a dreaded, compulsory school assignment and have no idea of the rewards available to successful science fair participants. BASEF awards cash prizes, awards and scholarships. The top winners have the chance to win an expense paid trip to either the national or international science fair.

Location of Events: Mohawk College

Note: Science Fair projects will be located in the new David Braley Athletic and Recreation Centre (DBARC)
Activity Morning and the BASEF awards ceremony will be in the McIntyre Performing Arts Centre.

Any changes or revisions to the plan will be posted on the BASEF website and will be announced at the fair.

Parking for Registration and Project Setup: There will be signs directing you to the Science Fair as you enter the College from the Fennell Avenue or West 5th Street entrance. Parents are instructed to please park in Lot P10 and walk to the DBARC gymnasium with your projects. Parking is free during project setup – but remember, only Lot P10 will be free. The traffic circle at the entrance to DBARC is a main thoroughfare and a fire route so project drop-offs will not be allowed at the DBARC entrance.

Parking for Activity Day, Public Viewing and the Awards Ceremony: There will be signs directing you to the event locations as you enter the College from the Fennell Avenue or West 5th Street entrance. Parents are instructed to please park in Lot P10. Volunteers, parking attendants and Security staff will be able to guide you to the events.

Regular parking fees apply during Activity Day, Public Viewing and the Awards Ceremony: Parents can buy a pay-and-display ticket for $5 from the staffed kiosk at the Visitors Parking Lot near the Main Entrance shown on the campus map, or buy their ticket for $10 at one of the parking ticket machines located at the P13 and P10 Parking Lots (see marked locations on the map). The machines accept cash only: coins, and $5 & $10 notes ONLY. The machines do not give change. See “Day by Day” for daily parking instructions.

There is a campus map included on the previous page of this program.

Miscellaneous Information

Dress code: We suggest neat and casual, with the emphasis on neat.

Food Allergies and Medical Issues: We ask that you remind the BASEF folks at the Registration Desk and throughout the fair, of any food allergies or special medical issues that pertain to your children. BASEF should be considered a public facility regarding food allergies.

Day by Day - Parent Responsibilities

Day 1 – Registration and Set-up

Project set up for the fair occurs ONLY on Wednesday, March 26, 2014 from 4:00 – 8:00 pm at Mohawk College DBARC Athletic Centre. Parking in Lot P10 is free. Park, then carry your project into the Gym. Projects not set up by 8:00 pm will be deemed as “no shows” and deleted from the judging process. Your child will visit a registration desk and find out their assigned display area in the gym. They will have their photograph taken for an ID badge and receive their goody bag. After the project is set up, one of our many safety inspectors will ensure that the project meets all safety guidelines. Students cannot leave until their projects
have been safety checked and passed. The registration process and project set up usually takes less than an hour. Be sure all of the safety rules and regulations regarding project size, display materials and ethical guidelines with respect to human and animal testing have been followed. Complete details are available on the official website: basef.ca /

Day 2 - Student Activity Morning, Thursday, March 27, 2014 @ 8:30 am – 12:00 noon

Students will be welcomed by volunteers at the McIntyre Performing Arts Centre beginning at 8:30 am. The Activity Morning Event starts at 9:00 am. Program details can be found on the BASEF website at: basef.ca/activities

Day 2 - Lunch - Thursday, March 27, 2014 @ 12:00 noon - 12:45 pm

BASEF student exhibitors will be escorted from the McIntyre Theatre to the DBARC Athletic Centre. Students must bring their own lunch and eat in the gym. There are no cafeteria facilities available to the students.

Day 2 – Afternoon Judging, Thursday, March 27, 2014 @ 12:45 – 4:00 pm

Students are required to be at their projects for judging between 1:00 – 4:00 pm. Teachers and parents are not permitted on the Gym floor after 12:45 pm in preparation for judging, which starts promptly at 1:00 pm. Typically, each student will be interviewed by at least four judges. Regular parking rates apply.

When picking students up after Judging at 4 pm, parents may park free in lot P10 for 1 hour. Other parking lots will have parking enforcement present. Do not wait along the roadway at the DBARC Athletic Centre entrance; this is a fire route.

Day 3 - Friday, March 28, 2014

The Fair is NOT open to students or the public on this day. The Fair Committee will be busy compiling results, writing cheques, engraving trophies and preparing for the awards ceremony.

Day 4 - Public Viewing, Saturday, March 29, 2014 9:00 am – Noon

Park in Lot P10. Regular parking fees apply - $5 from the staffed kiosk/ $10 from the machines. See details on previous page.

We ask that your children be at their projects in the gymnasium for Public Viewing from 9:00 am - 12:00 noon. At noon the students will be asked to remove their projects. Students may not remove their projects until after the Public Viewing.

We strongly recommend that you attend the public viewing with your child. It will give you an opportunity to view all of the great projects on display, and to see your own child doing presentations for visitors.

NEW TIME - The Awards Ceremony – Tuesday, April 1, 2014 7:00 – 9:30 pm

Park in Lot P10. Regular parking fees apply - $5 from the staffed kiosk/ $10 from the machines. See details on previous page.

The award ceremony is the culmination of the Fair and where the hard work of the students is recognized. The awards ceremony will begin at 7:00 pm sharp but it is recommended to come early as seating is limited. Doors will open to the theatre at 6:30 pm.

Note: Our trip award winners and a parent are required to attend an information meeting immediately after the Awards Ceremony (approximately one hour).

There! Wasn’t that easy? Congratulations to you and your young scientists and engineers! Be sure to visit the BASEF website (basef.ca) throughout the year. You’ll find project pictures and abstracts from last year’s fair, resource materials and important information about the next fair. Also follow the BASEF winners at basef.ca as they compete at the national and international science fairs. Their progress can be found in “Team BASEF”, with links to Facebook and Twitter.
BASEF thanks its 2014 sponsors

And the many Friends of the fair
BASEF Outreach: Resources Available to Students, Teachers, and Parents

The Bay Area Science and Engineering Fair offers students the opportunity to explore problems that matter to them using a longer term, project-based approach. BASEF offers a wide range of resources to help students conduct their research; from help getting started, to technical considerations such as how to design a project display, or finding answers to ethical and safety questions. We also offer help to parents and teachers working in support of the young researchers.

The main portal for this help is our website. If you only have time to explore one resource, a definitive guide called “Science Success” is a good place to start. It is available at www.basef.ca/outreach. “Science Success” consists of 4 parts: a guide for teachers, a student workbook, and two slide presentations useful for groups of students, teachers or parents.

www.basef.ca/resources contains a large number of links to a range of resources, with a detailed description of what can be found there. There are even design plans for a commonly-used wooden display board that can be shipped world-wide. To see what a typical BASEF project looks like, visit our project archives at www.basef.ca/2012awards and www.basef.ca/pastresults

Students, teachers and parents can access help directly from BASEF by emailing us at outreach@basef.ca. Experienced science fair veterans, professional scientists, engineers and educators are available to provide chalk-talks or workshops. This is particularly valuable for students attending schools not supportive of science fairs in the BASEF catchment area. Mentors can be arranged on request by emailing outreach@basef.ca. The BASEF Outreach program can also help you assemble a team of judges for your school fair, including how to actually organize the judging and evaluate the results.

Teacher’s Activity Day is an all day seminar for teachers covering everything you wanted to know about science fair projects, including a detailed description of the application process for students entering BASEF, safety, judging, and how to avoid the most common pitfalls encountered during registration. This course can be booked by emailing outreach@basef.ca.

Youth Engaging in Science (YES) offers students from equal opportunity schools the chance to work collaboratively with researchers and engineers toward completion of a science project eligible for entrance into BASEF (see the YES box below).

If you are not a scientist, it can be difficult to advise students on the ways of science. Fortunately, many articles have been written to assist those running science fairs (access these by emailing outreach@basef.ca) Also enquire about our talks on how science is done. Recent presentations given by BASEF volunteers include: An introduction to BASEF; How to get started and complete your science fair project; The difficulties science fair participants have with the concept of a hypothesis; How science fairs may encourage the “prepared mind” for innovation; and How science and Aboriginal culture may be related.

Project-based science, as promoted by science fairs, is one of the best ways to engage young people in a longer term, focused initiative where they can explore their own interests, exercise their curiosity, and experience the thrill of discovery. BASEF provides a friendly competition to encourage this in-depth exploration of new ideas. We at BASEF Outreach are here to help you get started with your project. Need help? Email outreach@basef.ca or visit our website at www.basef.ca.

The YES Mentorship: Our 5th Year!

The YES (Youth Engaging in Science) Mentorship pairs at-risk youth with mentors in science and engineering at the university, college and in-school levels. Founded by BASEF Organizing Committee members, Vanessa Scanga and Ryan Buist, the YES Mentorship recognizes the needs of elementary and secondary school students and provides them with the opportunity of engaged learning by lending mentorship and guidance toward participating in the regional BASEF. If you are interested in participating in YES and wish to learn more about its opportunities, please email us at youthengaginginscience@gmail.com

BASEF has been instrumental in supporting the YES Mentorship and has created a Special Projects Chair to foster this initiative. The Mentorship is grateful to its partners: BASEF, Hamilton Wentworth Catholic District School Board and Hamilton Wentworth District School Board. We thank our participating mentors in the Integrated Science (ISci) program at McMaster for their outstanding supervision of YES projects this year.

We are proud of all YES Mentorship students for their diligence and engagement in science and we wish all project participants the best of luck in this year’s regional fair. GO TEAM YES!
The Organizing Committee
derived Area Science and Engineering Fair congratulates:

Ingrid Munson
Maple Grove Public School
Halton District School Board

"... Ingrid’s enthusiasm for Science Fair has been contagious. ... Every school she has been at has participated in Science Fair. Even when she moves to a new school ... students continue to attend from those schools.

... has been one of the biggest advocates for the fair in Halton Board”

" I would not be where I am today [Stanford University], blessed with the opportunities at my avail if Ms. Munson had not opened my horizons many years ago. I am tremendously grateful for the impact that she has had on my life and interest in science, technology, and innovation.”

"... resourcefulness and genuine excitement for science education”

“... continues to foster a growing generation of students invested in science research”

“...incredibly enthusiastic and encouraging of exploratory learning”

CONGRATULATIONS TO THE 2014 BASEF CHAMPION TEACHER!

The Champion Teacher Recognition Award for 2014 includes induction into the BASEF Champion Teacher Hall of Fame, a plaque, and $350 for use in the classroom of the winning teacher. $250 of this year’s award is funded as part of the Awards for Excellence in Science & Technology. A panel of BASEF Organizing Committee members selects the Champion Teacher Recognition Award winners from among those nominated online by their peers, parents and students.

This award recognizes a science teacher who displays a remarkable ability to empower and excite student interest in science and who actively promotes the Bay Area Science and Engineering Fair.
BASEF ACTIVITY MORNING 2014

Presentation Schedule
March 27, 2014
9am – Noon
McIntyre Theatre, Mohawk College

8:30 am – 9:00 am

BASEF Student Drop Off
Proceed to Main Auditorium

9:00 am – 9:05 am

Introduction
Sponsor Comments

9:05 am – 9:30 am

McMaster University Venture/Leap - Video Session and Interactive Presentation
(Session is designed to accommodate classes arriving after 9 am)

9:30 am – 10:10 am

Hamilton Amateur Astronomers
John Gaureau’s Short Tour of the Universe

10:10 am – 10:50 am

General Motors Canada – Electrification of the Automobile
The Cadillac ELR…going beyond the Volt – Paul Hewitt

10:50 am – 11:15 am

The Journey from Idea to Profit
David Cox of CIBC Wood Gundy

11:15 am – Noon

McMaster University Chemistry Show
Professors Randy Dumont and Paul Harrison

Note: Grade 7-8 Students will be arriving by bus up until 9:30 am.
THANKS TO BASEF 2014 VOLUNTEERS!

Sabine Andriservich
Khushmeet Aulakh
Ryan Bowdish
Gail Britton
Trina Bowdish
Pauline Broni
Helena Collins
Roz Crawford
Tom Crawford
Lyndsey Dunn
Trixie Ellithorn
Thomas Flaxman
Victoria Flaxman
Ed Gillis
Mary Helen Gillis

Eleanor Frank
Jodi Hanlon
Ahmad Jaber
Lauren Jewett
Michele Joch
Mary Johnston
Linda Kennedy
Jennifer Kerr
Lorna Krauss
Daniel Lin
Shephanie Mcgill
Michaela Mcginn
Nancy Meadows
Palmer Neal

Pamela Penny
Monica Piastun
Obaid Quresh
Tamara Railic
Sue Reaume
Shena Saleh
Tyler Sangster
Doug Scott
Lauren Smith
Brenda Sloane
Borislav Todorov
Anna Vu
Martin Younan
Norman Young

Photo Team

Al Bates
Ryan Bowdish
Ming Chong
Lauren Jewett
John Novak
Chris Stearns
Rosemary Stearns

Registration Team

Rob Lenjosek
Jordan Lenjosek
Kevin Maclsaac
Nancy Carter
Janice Rocchi

We are proud to sponsor the Bay Area Science & Engineering Fair

Union Gas is proud of our commitment to the communities we serve.
Together, we’re helping to make a positive difference.
MERIT AWARD JUDGES

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Lynn Austin
Erika Bellhouse
Maureen Crane
Stephanie Drywood
Daniel Hoeksema
Stephanie Holko
Ron Johnson
Graeme McLeod
Joydeep Sengupta
Gavin Sheppard
Mansoor Tavassoly
Jane Wood

AVAR Environmental
Justin Lewis

Ballagh & Edward LLP
Valerie Edward

Brock University
Jeff Irvine

Byrne Engineering
L.H. Ben Van Berkel

C.A.S. of Hamilton
Peter Kalman

Canadian Memorial Chiropractic College
Tracy Chew

Canadian Red Cross
Nelson Ruiz Blanco

City of Hamilton
Daniel Lawlor
Erick Merlos
Carolyne Reid

Columbia International College
Ellier Leng

Crossroads Christian Communications Inc.
Linda Hazelden

DARTS Specialized Transit - Hamilton
Mark Mindorff

Dominy Analytics
Cliff Dominy

Future Stars Sports Photography
Rebecca Smith

Halton District School Board
Ingrid Munson

Hamilton Health Sciences
Mary Nardini
Romaine Sheriff
Deborah Yamamura
Bruce Young

Hamilton-Wentworth Catholic District School Board
Alan Roy
Donna Stack-Durward

Hamilton-Wentworth District School Board
Bill Forrester
Soula Kritikos

Hillfield Strathallan College
John Hannah

Homestarts Inc.
Jose Martinez Escanaverino

Hospital for Sick Children
Lisa Marie Di Vona

IBI Group
Scott McLaren

Jamnik Graphics
Munazza Ahmad

Juravinski Cancer Centre
Athanasios Paschos

L-3 Wescam
Adam Buggeln

McMaster University
Allison Abdilla
Konstantinos Apostolou
Jonathan Bramson
Ryan Buensuceso
Alisha Butani
Sara Cormier
Neha Dewan
Daniel Dsouza
Danielle Franciscus
Ellis Freedman
Jim Garrett
Tsion Gebremedhen
Sophie Geffros
Richard Hamilton
James Seong Jun Han
Zeeshan Haqquee
Laura Holder
Alexander Hume
Peter Jonasson
Wen Kang
Ryan Lamers
Philip Lauman
Izaak Lea
Brian Li
Nikola Lukenda
Ola Lunyk Child
Sohail Mahmood
Monika Malig
Gurditt Mangat
Bhaag Marway
Rabia Mateen
Jose Moran-Mirabal

McMaster University (continued)
Hasib Nadvi
Zainab Naimpoor
Ahmed Negm
Stephanie Neufeld
Uyen Nguyen
Sara Okawa
Giusepina Pacher
Mawlesh Pathmarajah
Connor Peric
Christian Pretto
Abdullah Raja
Michelle Reid
Tarek Sadek
Luana Sciullo
Danielle Sexton
Daryl Sivakumar
Susie Son
Jennifer Stearns
Peter Summers
Netusha Thevaranjan
Brian Tuinema
Meghan Verschoor
Kate Whalen
Wenli Xie`
Fei Xu
Michael Xu
Jonathan Yau
Charles Yin
Sehrish Zehra
Karl Zimmermann

McMaster University Students
Daniel Dyck
Timothy Fernandes
Emily Li
Natalie Raso
Ian Sinke
Fiona Whelan

McMaster University/ MacAUTO
Stephen Bieda

Ministry of Community Family & Childrens Services
Cheryl Pinto

Mohawk College
Jana Jilek
Matt Kovacs
Brian Minaji
Brian Stefanchuk
MERIT AWARD JUDGES (Continued)

Newman Hattersley Ltd.
Bradley Michell

Ontario Environmental Assessment
James Kaspersetz

Ontario Ministry Children and Youth Services
David Lewis

Ontario Power Generation
Gordon Jeung

Retired
Ian David Brown
Allan Crowe
Steve Dawe
Robert de Haan
C. Fraser Forrest

Retired (continued)
Luciano Giancarlo
Helen Graham
Warren Johnson
Mary Johnston
Jennine Kafka
Paul-Benoit Latour
Hansa Patel
Ray Procwat
Beverly Shepard
Robindra Singh
Donald Stevens
George Sweeney
Paul Wehrle
Otto Zander

Self Employed
Eric Harrison
Colin Wu

Sheridan College
Graham Stratford

Student
Aneesha Ghosh
Rachel Kelly
Chantel Markle
Chenwei Ji
Sarnia Nijjati
Saba Saiel
Aamir Shaik
Margot Smith
Nicole Zathey

Unaffiliated
Mike Parchimowicz
Nikesh Patel
Arjun Raha
George Roberts
Tom Themeles
Teala Tyson

University of Toronto
Ranil Sonnadara

William Osler Health Center
Ferid Rashid
Xerox
Shane Morin

Hillfield Strathallan College
Here Excellence is a Way of Life

Proud to Support the
2014 Bay Area Science & Engineering Fair

Congratulations to all participants:
future science & technology leaders

www.hsc.on.ca
Excellence—Innovation—Global Citizenship—Leadership—Athletics
**SPECIAL AWARD JUDGES**

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<td>Tom Sutton, Dragan Vuckovic, Jim Dickson, Barry Smallbone, Don Barclay</td>
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<td>Dr. Nicola Simmons</td>
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Intermediate 9/10 Earth & Env Sci
Abbey Park High School, HDSB

A03 Mechanisms of Misfolding the Native Form of Prion Protein PrPC into Toxic Form PrPSc
Chelsea Liu
Senior 11/12 Health Sciences Human
Abbey Park High School, HDSB

A04 Novel Approach of Reducing Toxic Effects of Mutant Huntingtin Gene (mHtt) on Striatal Neurons by Upregulating the Expres
Samuel Han, Jack Greenberg
Intermediate 9/10 Health Sciences Human
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A05 Can hot water freeze faster than cold water?
Madison Rose, Kate-Lynn Reavley
Junior 7/8 Phys & Math Sci
Adelaide Hoodless, HWDSB

A06 Magic Magnets
Josiah Bailey, Nigel Thomas
Junior 7/8 Phys & Math Sci
Adelaide Hoodless, HWDSB

A07 The Effect of Heat on Chemical Reactions
Mohibe Tasneem
Junior 7/8 Phys & Math Sci
Al-Falah Islamic School, IND

A08 The Effect of Different Fabrics on Water Temperature
Azza Siddiqui
Junior 7/8 Phys & Math Sci
Al-Falah Islamic School, IND

A09 The effect of pain killers dissolving the fastest in a human body?
Hanna Zerrouk
Junior 7/8 Health Sciences Human
Al-Falah Islamic School, IND

A10 Which Metal is Most Resistant to Acid Corrosion?
Mahnoor Naeem
Junior 7/8 Eng & Comp Sci
Al-Falah Islamic School, IND

A11 Which anti-rust paint is the best?
Lina Sekhri
Junior 7/8 Eng & Comp Sci
Al-Falah Islamic School, IND

A12 Which wire powers electric motors best?
Nawal Abdo
Junior 7/8 Eng & Comp Sci
Al-Falah Islamic School, IND

A13 The Effect of Food Wrappings on Spoilage
Maaria Muhammad
Junior 7/8 Life Sciences Non-Human
Al-Falah Islamic School, IND

A14 The Reflection of Wi-Fi Waves
Haroon Adnan
Junior 7/8 Eng & Comp Sci
Al-Falah Islamic School, IND

A15 Relationship between walking and diabetes.
Abdul-kareem Bhinder
Junior 7/8 Health Sciences Human
Al-Falah Islamic School, IND

A16 Which liquids affect a eighth grades pulse rate?
Subhan Tahir
Junior 7/8 Health Sciences Human
Al-Falah Islamic School, IND

A17 Does Age Affect the Stroop Effect?
Abdullah Zaidi
Junior 7/8 Health Sciences Human
Al-Falah Islamic School, IND

A18 Which Antacid Is Most Potent
Nusaybah Ahmed
Junior 7/8 Health Sciences Human
Al-Falah Islamic School, IND

B01 Blood Type and Transfusion The Hemolytic Transfusion Reaction
Muhammad Bajwa
Junior 7/8 Health Sciences Human
Al-Falah Islamic School, IND

B02 Clean It
Lily Wu
Intermediate 9/10 Life Sciences Non-Human
Ancaster High, HWDSB

B03 Targeting Cancer: This Is Personal!
Maya Emerson
Intermediate 9/10 Health Sciences Human
Ancaster High, HWDSB

B04 Staphylococcus, Streptococcus, Pseudomonas & Co.
Kira Fusch
Intermediate 9/10 Health Sciences Human
Ancaster High, HWDSB

B05 So, Like, You, Um, Talk, Uh, Like This?
Eunice Chan
Intermediate 9/10 Health Sciences Human
Ancaster High, HWDSB

B06 Texting Vs Talking On A Phone
Husnain Ahmed
Junior 7/8 Phys & Math Sci
Ancaster Meadow, HWDSB

B07 The Selfish Gene
Alla Bengizi, Alma Begic
Junior 7/8 Health Sciences Human
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Samantha Mule, Lara Monson
Junior 7/8 Earth & Env Sci
Annunciation of Our Lord, HWCD

B09   Hot! Cold! Magnestism
Lucas Tirabassi, Michael Filipponio
Junior 7/8 Earth & Env Sci
Annunciation of Our Lord, HWCD

B10   Different Materials Melting Ice at Varying Temperatures
Jodh Dhillon
Junior 7/8 Earth & Env Sci
Appleby College, IND

B11   Correlation Between Colour and Taste Perception
Noah Caza
Junior 7/8 Health Sciences Human
Appleby College, IND

B12   Is Your Brain to Blame?
Natalie Navarro
Junior 7/8 Health Sciences Human
Appleby College, IND

B13   Spread Soap, Not Germs
Deepthy Jeeva
Junior 7/8 Health Sciences Human
Appleby College, IND

B14   Ultrasonic Vision
Dana Torbin
Junior 7/8 Eng & Comp Sci
Appleby College, IND

B15   Flexing a Hockey Stick
Samuel Gaskin
Junior 7/8 Phys & Math Sci
Appleby College, IND

B16   Knock Knock
Josie Jelinek
Junior 7/8 Health Sciences Human
Appleby College, IND

B17   SMILE!
Gwyneth Egan
Junior 7/8 Health Sciences Human
Appleby College, IND

B18   Conduction vs. Convection
Zyana Xing
Junior 7/8 Earth & Env Sci
Appleby College, IND

C01   The Power of Subconscious Mind
David Gao
Junior 7/8 Health Sciences Human
Appleby College, IND

C02   The Effects of Fertilizers on Bean Germination
Sophie Prevost
Junior 7/8 Earth & Env Sci
Appleby College, IND

C03   Using Daphnia as a Bioassay to Measure Water Toxicity
Ayat Khalil, Jacklyn Clark
Senior 11/12 Earth & Env Sci Barton, HWDSB
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<td><strong>C10</strong> SNIFF, SNIFF, Mmmmmmmm</td>
<td>Daniel Knight</td>
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<td>Junior 7/8 Earth &amp; Env Sci Burlington Christian Academy, IND</td>
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Hillfield Strathallan College, IND

E05  Pop Decay
Christopher Goater, Daniel Kuhn
Junior 7/8 Health Sciences Human
Hillfield Strathallan College, IND

E06  Go With The Flow
Simon Grande, Drake Mosca
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E07  The Science of Willy Wonka
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E08  Sunware or Funware?
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Junior 7/8 Health Sciences Human
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E09  The EYES Have It
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Junior 7/8 Health Sciences Human
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<td>Do Eon Lee</td>
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G03  Help! I Think My Drink is Making Me Ill!
Zinnia Al-Najjar, Stephanie Lebel
Senior 11/12 Health Sciences Human
King’s Christian Collegiate, IND

G04  It’s Food, It’s Medicine
Maureece Berchie, Yosi Ladipo
Senior 11/12 Health Sciences Human
King’s Christian Collegiate, IND

G05  Nature over Science: Is Flu Vaccination Just a Placebo?
Jessie Babra, Rebecca John
Senior 11/12 Health Sciences Human
King’s Christian Collegiate, IND

G06  Determining Calcium Absorption in Top Calcium Rich Foods and Supplement Pills
Hannah Keith
Senior 11/12 Health Sciences Human
King’s Christian Collegiate, IND

G07  Antimicrobial Activity of Essential Oils
Karly Parker, Tanya Ralliaram
Senior 11/12 Health Sciences Human
King’s Christian Collegiate, IND

G08  Reducing Concussions through custom orthotic methods
Zach Quon
Senior 11/12 Health Sciences Human
King’s Christian Collegiate, IND

G09  Baby Don’t Herd Me
Maria Salman, Jennifer Ge
Junior 7/8 Earth & Env Sci
Maple Grove Public School, HDSB

G10  How Does Music Affect Your Heart
Lexi Maharaj, Paige Burkhart
Junior 7/8 Health Sciences Human
Maple Grove Public School, HDSB

G11  Resisting Rust
Noah Becks-D’Souza, Ethan Smith
Junior 7/8 Eng & Comp Sci
Maple Grove Public School, HDSB

G12  Are You Dirty
Max Reigate, Sarah Rosenzweig
Junior 7/8 Health Sciences Human
Maple Grove Public School, HDSB

G13  How does Coca-Cola Affect Your Body
Ella Lowes, Sofia Dell
Junior 7/8 Health Sciences Human
Maple Grove Public School, HDSB
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    Bridget Peros
    Junior 7/8 Health Sciences Human
    Maple Grove Public School, HDSB

G15  Breaking Soil
    Sydney Nicholls, Anna Bremermann
    Junior 7/8 Earth & Env Sci
    Maple Grove Public School, HDSB

G16  Bottle Of Cavities
    Lauren Power
    Junior 7/8 Health Sciences Human
    Maple Grove Public School, HDSB

G17  Battle of the brakes
    Matthew Saunders, Christopher Merrick
    Junior 7/8 Phys & Math Sci
    Maple Grove Public School, HDSB

G18  Conventionally Grown Soybeans vs. Organically Grown Soybeans
    Olivia Gardiner, Alexandra Ruetz
    Junior 7/8 Earth & Env Sci
    Maple Grove Public School, HDSB

H01  Memory Recall in Different Genders
    Declan Finerty
    Junior 7/8 Health Sciences Human
    Maple Grove Public School, HDSB

H02  Salt of the Earth
    Victoria Orfei, Alyssa Wereha
    Junior 7/8 Life Sciences Non-Human
    Mother Teresa, HWCD

H03  Pass Me the Caffeine!
    Neha Malhotra, Shannin Yee
    Senior 11/12 Life Sciences Non-Human
    North Park Collegiate and Vocational School, GEDSB

H04  Metal Corrosion: Is Corrosion Faster in Salt Water or Distilled Water
    Zachary Roth
    Junior 7/8 Eng & Comp Sci
    Oakville Christian School, IND

H05  FLOOD WATER PURIFICATION AT HOME
    Eduard Brenninkmeijer
    Junior 7/8 Earth & Env Sci
    Oakville Christian School, IND

H06  'Bitter Sweet' How much sugar is really in that drink?
    MacKenzie Clasper
    Junior 7/8 Health Sciences Human
    Oakville Christian School, IND

H07  Another One Bites the Rust!
    Dante Tatone
    Junior 7/8 Earth & Env Sci
    Oakville Christian School, IND

H08  Pain, Pain go Away
    Blake Correia
    Junior 7/8 Health Sciences Human
    Oakville Christian School, IND

H09  A Brighter Smile
    Karen Philopos, Maria Ghobrial
    Junior 7/8 Health Sciences Human
    Oakville Christian School, IND

H10  Storage Wars
    JJ Beed
    Junior 7/8 Health Sciences Human
    Oakville Christian School, IND

H11  Robotic Guide Dog Walking the Future
    Mark Gobran
    Junior 7/8 Eng & Comp Sci
    Oakville Christian School, IND

H12  Stressing the Limits
    Aidan Britnell
    Junior 7/8 Health Sciences Human
    Oakville Christian School, IND

H13  Feel The Attraction
    Jonathan Grebe
    Junior 7/8 Eng & Comp Sci
    Oakville Christian School, IND

H14  Bridging Limits
    David Houldsworth
    Junior 7/8 Eng & Comp Sci
    Oakville Christian School, IND

H15  'C' Vitamin C
    Emily Vieira, Julia Tymstra
    Junior 7/8 Health Sciences Human
    Oakville Christian School, IND

H16  Impact of Road Salt on Environmental Health
    Komal Adeel, Maham Tasneem
    Senior 11/12 Earth & Env Sci
    Oakville Trafalgar High School, HDSB

H17  How Headaches Effect the Academic Performance
    Laura Hill, Avery Hill
    Junior 7/8 Health Sciences Human
    Oliver M. Smith Kawennio:io, SNS

H18  Does Diabetes Discriminate
    Dallas Jayne, Denver Jayne
    Junior 7/8 Health Sciences Human
    Oliver M. Smith Kawennio:io, SNS

J01  Protecting your Noodle
    Victoria Miller-Loft, Fiyonna Hill
    Junior 7/8 Eng & Comp Sci
    Oliver M. Smith Kawennio:io, SNS

J02  Stress
    Jenna Hill, Rowann Hill
    Junior 7/8 Health Sciences Human
    Oliver M. Smith Kawennio:io, SNS

J03  Alternative Approaches to Knee Pain Care
    Angelina Bomberry
    Junior 7/8 Health Sciences Human
    Oliver M. Smith Kawennio:io, SNS

J04  How can we clean oil spills without harming the planet and what is the best way?
    Mikayla Ritchie
    Junior 7/8 Earth & Env Sci
    Oliver M. Smith Kawennio:io, SNS

J05  Why are sharks scary
    Dion Martin
    Junior 7/8 Earth & Env Sci
    Oliver M. Smith Kawennio:io, SNS
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<td>Reaction</td>
<td>Jason Hill, Oliver M. Smith</td>
<td>7/8</td>
<td>Phys &amp; Math Sci</td>
<td>Kawennio:io, SNS</td>
</tr>
<tr>
<td>J07</td>
<td>The Golden Look</td>
<td>Hyacinth Vibangco, Anaka Thomas</td>
<td>7/8</td>
<td>Health Sciences Human</td>
<td>Pope John Paul II, HWCD</td>
</tr>
<tr>
<td>J08</td>
<td>Do We Share Equal Air</td>
<td>Frank Rivas-Gonzalez</td>
<td>7/8</td>
<td>Earth &amp; Env Sci</td>
<td>Pope John Paul II, HWCD</td>
</tr>
<tr>
<td>J09</td>
<td>The Effect Of Surface Temperature on Fingerprints</td>
<td>Bianca Devcic</td>
<td>7/8</td>
<td>Phys &amp; Math Sci</td>
<td>Pope John Paul II, HWCD</td>
</tr>
<tr>
<td>J10</td>
<td>Mobile Phone Radiation</td>
<td>Jacob Fram</td>
<td>7/8</td>
<td>Eng &amp; Comp Sci</td>
<td>Pope John Paul II, HWCD</td>
</tr>
<tr>
<td>J11</td>
<td>Waking Up! The Battle of the Brain</td>
<td>Claudia Pashkja</td>
<td>7/8</td>
<td>Health Sciences Human</td>
<td>Regina Mundi, HWCD</td>
</tr>
<tr>
<td>J12</td>
<td>Do YOUth know how to safely use OTC pain relievers?</td>
<td>Sophia Spitman</td>
<td>7/8</td>
<td>Health Sciences Human</td>
<td>Regina Mundi, HWCD</td>
</tr>
<tr>
<td>J13</td>
<td>Beat to the Beat</td>
<td>Sophie Barbato</td>
<td>7/8</td>
<td>Health Sciences Human</td>
<td>Rolling Meadows Public School, HDSB</td>
</tr>
<tr>
<td>J14</td>
<td>Smile! Your Teeth are on Trial</td>
<td>Elizabeth Raynor</td>
<td>7/8</td>
<td>Life Sciences Non-Human</td>
<td>Rolling Meadows Public School, HDSB</td>
</tr>
<tr>
<td>J15</td>
<td>Gel well</td>
<td>Christine Macpherson</td>
<td>7/8</td>
<td>Phys &amp; Math Sci</td>
<td>Rotherglen School (Oakville), IND</td>
</tr>
<tr>
<td>J16</td>
<td>Surface Tension</td>
<td>Sofia DiSalle</td>
<td>7/8</td>
<td>Phys &amp; Math Sci</td>
<td>Rotherglen School (Oakville), IND</td>
</tr>
<tr>
<td>J17</td>
<td>Changing Our Path</td>
<td>Nolan Babin</td>
<td>7/8</td>
<td>Earth &amp; Env Sci</td>
<td>Sacred Heart of Jesus, HWCD</td>
</tr>
<tr>
<td>J18</td>
<td>Human Behavior</td>
<td>Mitchell Ford, Carl Flores</td>
<td>7/8</td>
<td>Health Sciences Human</td>
<td>Sacred Heart of Jesus, HWCD</td>
</tr>
<tr>
<td>K01</td>
<td>Some Like It Spicy: The Antibacterial Effects of Assorted Spices on Foodborne Illness-Causing Bacteria and Probiotic Bac</td>
<td>Priynka Dhillon, Kazi Akther</td>
<td>11/12</td>
<td>Health Sciences Human</td>
<td>Sir John A. Macdonald, HWDSB</td>
</tr>
</tbody>
</table>
K02  Algae as Renewable Energy  
Adiba Ahmed, Tiffany Nguyen  
Senior 11/12 Earth & Env Sci  
Sir John A. Macdonald, HWDSB

K03  The Nematode Diversity Project  
Jonah Robotham  
Senior 11/12 Life Sciences Non-Human  
Sir John A. Macdonald, HWDSB

K04  Highlighters  
Viv Holmes, Ria Pathak  
Junior 7/8 Health Sciences Human  
Sir William Osler, HWDSB

K05  Micro What?  
Eryn Johnston, Naomi Terhljan  
Junior 7/8 Life Sciences Non-Human  
Sir William Osler, HWDSB

K06  Helmet Worth It  
Reid Perusini, Riley Bennett  
Junior 7/8 Health Sciences Human  
Sir William Osler, HWDSB

K07  Turmeric: Spice or Antibacterial  
Does Turmeric Have an Antibacterial Effect  
Radha Patel, Kaitlyn Pathak  
Junior 7/8 Life Sciences Non-Human  
Sir William Osler, HWDSB

K08  Young Money  
Parsa Norouzian, Ross Colborne  
Junior 7/8 Health Sciences Human  
Sir William Osler, HWDSB

K09  Force, area, pressure and hovercrafts  
Derek De Gelder, Alex Zegarac  
Junior 7/8 Phys & Math Sci  
Sir William Osler, HWDSB

K10  Personality Disorders in Young Teens  
Morgan Cale, Coral Borer  
Junior 7/8 Health Sciences Human  
Sir William Osler, HWDSB

K11  Walking In Circles  
Dylan Patrick, Sam Wilson  
Junior 7/8 Health Sciences Human  
Sir William Osler, HWDSB

K12  Messy Makeup  
Emily Egan  
Junior 7/8 Health Sciences Human  
Sir William Osler, HWDSB

K13  Miracle Drug?  
Elizabeth West, Stacie Perreault  
Junior 7/8 Earth & Env Sci  
Sir William Osler, HWDSB

K14  Breakfast and Nutrition  
Antony Skerret, Zach Hampson  
Junior 7/8 Health Sciences Human  
Sir William Osler, HWDSB

K15  Gas Vs. Electric - Are You Really Saving $$$?  
Noah Michelsen, Paul Robson  
Junior 7/8 Phys & Math Sci  
Sir William Osler, HWDSB

K16  Frankenfood: Effects of Genetically Modified Foods on Humans  
Lucas Rotella  
Junior 7/8 Life Sciences Non-Human  
St. Agnes, HWCD

K17  A Modern Math for A Modern World  
Aidan Mariglia  
Junior 7/8 Phys & Math Sci  
St. Agnes, HWCD

K18  Peat Moss cleans up  
matthew Divittorio  
Junior 7/8 Earth & Env Sci  
St. Agnes, HWCD

L01  Publicious Brainpower  
Jaslyn Ozimok, Serena D'Angelo  
Junior 7/8 Health Sciences Human  
St. Agnes, HWCD

L02  Bumper Tomato Crop: When to fertilize and what to use  
Cecelia Dietrich  
Junior 7/8 Earth & Env Sci  
St. Andrew, HCDSB

L03  Fuego! Fuego! The Roof is on Fire!  
Brendon Cabral, Jacob Ascencio-arriola  
Junior 7/8 Eng & Comp Sci  
St. Ann (Hamilton), HWCD

L04  Shoot 2 Score  
Dante Medeiros  
Junior 7/8 Eng & Comp Sci  
St. Augustine, HWCD

L05  Changing Shades  
Avery Schmalz  
Junior 7/8 Health Sciences Human  
St. Augustine, HWCD

L06  More Then The Eye Can See  
Mayne Paul  
Junior 7/8 Health Sciences Human  
St. Augustine, HWCD

L07  Got Milk?  
Rachel Opsteen  
Junior 7/8 Health Sciences Human  
St. Augustine, HWCD

L08  Pestilential Antacid Risk  
Daniel Kim  
Junior 7/8 Health Sciences Human  
St. Augustine, HWCD

L09  Rock Solid  
Nolan Tassone  
Junior 7/8 Earth & Env Sci  
St. Augustine, HWCD

L10  SO DIS IS HOW TREAT H2O?  
Benjamin Denomey, William Tsounis  
Junior 7/8 Earth & Env Sci  
Sir William Osler, HWDSB

L11  Breathe! A Study of Vital Lung Capacity in Singers and Non-Singers  
Claire Hunter  
Junior 7/8 Health Sciences Human  
St. Augustine, HWCD

L12  Eco Melt  
Patrick Lutz  
Junior 7/8 Earth & Env Sci  
St. Augustine, HWCD
L13   HOW DOES THE SURFACE THAT A CAR MOVES ON IMPACT THE ACCELERATION?
Dante Aldighieri
Junior 7/8 Phys & Math Sci
St. Augustine, HWCD

L14   TROUBLE IN PARADISE: Can recycling shells help buffer the effects of Ocean Acidification?
Isabella O’Brien
Junior 7/8 Earth & Env Sci
St. Augustine, HWCD

L15   How Crude is Your Oil?
Jessica Bohm
Junior 7/8 Earth & Env Sci
St. Augustine, HWCD

L16   Can citris fruit clean copper pennies
Katelyn Scime
Junior 7/8 Eng & Comp Sci
St. Bernadette, HWCD

L17   Do Font and Page Color Affect Our Memory?
Sophia Lavalle, Dani Racheva
Junior 7/8 Life Sciences Non-Human
St. Bernadette, HCDSB

L18   Biodiversity and its consequences
Rianna Furtado
Junior 7/8 Earth & Env Sci
St. Bernadette, HCDSB

M01   Comparing Line Symmetry Of Celebrities
Rachel Bruce
Junior 7/8 Health Sciences Human
St. Bernadette, HCDSB

M02   Artificial intelligence
James Ryan, Cameron Trovarello
Junior 7/8 Eng & Comp Sci
St. Bernadette, HCDSB

M03   Evolution of the flower
Vanessa Begic, Juliana Wadie
Junior 7/8 Earth & Env Sci
St. Bernadette, HCDSB

M04   How much nutritional value?
Carol Helmy, Valeria Baldeon
Junior 7/8 Health Sciences Human
St. Bernadette, HCDSB

M05   The brain theory
Nicholas Scarcelli
Junior 7/8 Health Sciences Human
St. Bernadette, HCDSB

M06   Glass VS. Plastic
Isabelle McDaniel, Karen Hopkins
Junior 7/8 Earth & Env Sci
St. Bernadette, HCDSB

M07   Cell Phone Radiation
Daniela Urday, Sheanna Wirasinghe
Junior 7/8 Phys & Math Sci
St. Bernadette, HCDSB

M08   Do the wave!
Oforiwaa Badu, Faye Varanesi
Junior 7/8 Life Sciences Non-Human
St. Bernadette, HCDSB

M09   Bio-plastics
Michela Davies
Junior 7/8 Earth & Env Sci
St. Clare of Assisi, HWCD
PROJECT LISTING (Continued)

M10  Drink Up - Desalination  
Kirsten Badzioch  
Junior 7/8 Phys & Math Sci  
St. David, HWCD  

M11  In Pursuit of the Cold Truth: Are Brain Freezes and Migraine Headaches Related?  
Julie Daugavietis, Sophie Marchetti  
Junior 7/8 Health Sciences Human  
St. John (Oakville), HCDSB  

M12  COLOURS TO DYE FOR  
Iva Mutnjakovic, Sioma Fonseca  
Junior 7/8 Biotechnology  
St. Joseph, HWCD  

M13  Household Liquids vs. Commercial Disinfectants  
Ann Joby  
Junior 7/8 Life Sciences Non-Human  
St. Joseph, HWCD  

M14  How Does Temperature Affect Dry Ice?  
Vincent Barzetti  
Junior 7/8 Phys & Math Sci  
St. Luke, HWCD  

M15  What is the Best Type of Insulation for Your Home?  
Steven Ciancone  
Junior 7/8 Earth & Env Sci  
St. Margaret Mary, HWCD  

M16  ‘GO WITH THE FLUO-RIDE’  
JULIANA RAMELLI  
Junior 7/8 Health Sciences Human  
St. Margaret Mary, HWCD  

M17  Plants Stayin' Alive  
Charlotte Leach  
Junior 7/8 Life Sciences Non-Human  
St. Margaret Mary, HWCD  

M18  Does Packaging Influence a Child’s Decision?  
Nishel Cameron, Alyssa Cinquina  
Junior 7/8 Life Sciences Non-Human  
St. Marguerite d'Youville, HWCD  

N01  Germ Invasion  
Alannah Best, Paolo Bozzo  
Junior 7/8 Life Sciences Non-Human  
St. Marguerite d'Youville, HWCD  

N02  Colours For All Ages  
Mackenzie Vandenbosch  
Junior 7/8 Health Sciences Human  
St. Mark, HWCD  

N03  Tropospheric Ozone Testing  
Josie Aquino  
Junior 7/8 Earth & Env Sci  
St. Michael, HWCD  

N04  Not Your Average Headache  
Deanna Allain  
Junior 7/8 Health Sciences Human  
St. Michael, HWCD  

N05  Is Your Dog Seeing ‘Red?’  
Lauren Williamson, Maya Lepper  
Junior 7/8 Life Sciences Non-Human  
St. Michael, HWCD  

N06  The Green Team  
Hannah DeNardis, Chloe Ruggiero  
Junior 7/8 Earth & Env Sci  
St. Therese of Lisieux, HWCD  

N07  Passive Manipulation of Thermal Radiation - Dual Purpose Condensers to Provide Potable Water  
Calvin Rieder  
Senior 11/12 Eng & Comp Sci  
St. Thomas Aquinas, HCDSB  

N08  Horoscopes  
Sarah Shelley, Ariya Shiwram  
Junior 7/8 Life Sciences Non-Human  
Sunningdale Public School, HDSB  

N09  Why does the moon change colour?  
Moira Sumner, Sara Harding  
Junior 7/8 Earth & Env Sci  
Sunningdale Public School, HDSB  

CONGRATULATIONS  
To all BASEF2014 participants and  
BEST WISHES  
For your continued success in all your endeavours!  
From the Halton Catholic District School Board  
- committed to developing inquiring minds,  
which will create solutions to tomorrow’s challenges  

Diane Rabenda           Paula Dawson  
Chair of the Board    Director of Education  
Serving the Catholic Communities of Burlington, Halton Hills, Milton and Oakville
PROJECT LISTING (Continued)

N10 Is It Acidic or Is It Alkaline
Delia Konnerth
Junior 7/8 Life Sciences Non-Human
Sunningdale Public School, HDSB

N11 Do we really have a good night sleep?
Niloufer Khan
Junior 7/8 Health Sciences Human
Sunningdale Public School, HDSB

N12 What flies, how to fold a paper aeroplane that works
Travis Czebe
Junior 7/8 Eng & Comp Sci
Sunningdale Public School, HDSB

N13 The Changing Shape of Fear
Erica Van Hoffen
Junior 7/8 Health Sciences Human
Trinity Christian School, IN

N14 Bright Backgrounds
Emma Zwiers, Helen Peever
Junior 7/8 Health Sciences Human
Trinity Christian School, IN

N15 The Dirt on Dirt: Soiled Soil and What Our Perfect Lawns Are Doing To the Environment
Dylan Stratndee
Junior 7/8 Earth & Env Sci
W. H. Morden Public School, HDSB

N16 Too Much Pressure For You?
Edward Yeung
Junior 7/8 Phys & Math Sci
W. H. Morden Public School, HDSB

N17 Walking With Water
Xander Don-Wauchope, Iain Headrick
Junior 7/8 Health Sciences Human
W. H. Morden Public School, HDSB

N18 Colour Your Memory
Shivaani Iyer
Junior 7/8 Health Sciences Human
W. H. Morden Public School, HDSB

P01 Distraction Reaction
Devon Penfold, Kimberley Kirkpatrick
Junior 7/8 Health Sciences Human
W. H. Morden Public School, HDSB

P02 Using smell to enhance memory?
Zaina Supra, Kayla Abela
Junior 7/8 Health Sciences Human
W. H. Morden Public School, HDSB

P03 Buy Into This
Jacob Clyde, Nathan Louie
Junior 7/8 Health Sciences Human
W. H. Morden Public School, HDSB

P04 The Brain Workout Works Out!
Isha Shah
Junior 7/8 Health Sciences Human
W. H. Morden Public School, HDSB

P05 Can You Hear It? The Correlations Between ADHD and Audio Pareidolia
Max Perry, Adesh Suchit
Junior 7/8 Health Sciences Human
W. H. Morden Public School, HDSB

P06 The Taste of Colour
Crystal Sharpe
Junior 7/8 Health Sciences Human
W. H. Morden Public School, HDSB

P07 Blood Pressure, A Safe Measure
Sohini Gupta
Junior 7/8 Health Sciences Human
W. H. Morden Public School, HDSB

P08 React-tune Time
Jack Spero, Daniel Rayner
Junior 7/8 Phys & Math Sci
W. H. Morden Public School, HDSB

P09 Freggie Zombies vs the Light Saver: The Effect of Circadian UVB Light on Spoil Rates of Postharvest Produce
David Flaherty, Jacob Flaherty
Intermediate 9/10 Life Sciences Non-Human
Westdale, HWDSB

P10 In with the Old - The Antifungal Effects of Natural Compounds against Saccharomyces cerevisiae
Samna Aziz
Intermediate 9/10 Health Sciences Human
Westmount, HWDSB

Moeyyad Qureshi, Tuneer Mondal
Intermediate 9/10 Health Sciences Human
Westmount, HWDSB

Q01 Comparing Thermal Insulation
Saifullah Khan
Junior 7/8 Eng & Comp Sci
Al-Falah Islamic School, IN

Q02 Which type of insulation best protect against windchill
Maha Chaudhry
Junior 7/8 Earth & Env Sci
Al-Falah Islamic School, IN

Q03 The Effect of Antidepressant Treatment on Brain-Derived Neurotropic Factor Levels in Serum of Female Patients with Major Arjuna Maharaj
Senior 11/12 Health Sciences Human
Ancaster High, HWDSB

Q04 The Relationship Between Spatial Reasoning and the Duration of Weekly Video Game Playing Time on Males Aged 14-16
Vivian Dao
Intermediate 9/10 Health Sciences Human
Ancaster High, HWDSB

Q05 Mitosis in Onion Root Tip Cells
AKASH THAPAR
Junior 7/8 Life Sciences Non-Human
Ancaster Meadow, HWDSB
PROJECT LISTING (Continued)

Q06 Hot or Cold? Fast or Slow?
Eduardo Moraes
Junior 7/8 Eng & Comp Sci
Appleby College, IND

Q07 Fold My Clothes
Emanuel Estrada Larios
Intermediate 9/10 Eng & Comp Sci
Bishop Ryan, HWCD

Q08 An Innovative Approach to Multi-core Processor Interconnection Networks
Alex Tomala
Senior 11/12 Eng & Comp Sci
Cardinal Newman, HWCD

Q09 Colours affecting heart rate
Jennifer Zubkavich
Junior 7/8 Health Sciences Human Dalewood, HWDSB

Q10 Herbs for Healthier Hydration
Vidthiya Jeyanathan, Nicola Lawford
Junior 7/8 Earth & Env Sci Dalewood, HWDSB

Q11 DaleRover
Dimuthu Jayatilaka
Junior 7/8 Eng & Comp Sci Dalewood, HWDSB

Q12 Robotic Object Movement System
Kevin Boenisch
Intermediate 9/10 Eng & Comp Sci Hillfield Strathallan College, IND

Q13 Heads up: Attentive Driving Device
Lukas Bauer, Kenji Marshall
Intermediate 9/10 Eng & Comp Sci Hillfield Strathallan College, IND

Q14 THE SXSR SIGNATURE RECOGNITION ENGINE
Nicholas Mertin
Junior 7/8 Eng & Comp Sci Hillfield Strathallan College, IND

Q15 Lead It Steep
Julia Dobrovolskis
Junior 7/8 Earth & Env Sci Hillfield Strathallan College, IND

Q16 Cool Sun: Series II
Sarah Williams-Habibi
Intermediate 9/10 Eng & Comp Sci Hillfield Strathallan College, IND

Q17 Energy-Conservation Calculation Application
Thomas Habicht
Intermediate 9/10 Eng & Comp Sci Home Schooling, IND

Q18 Battery Selection Tool
Liam Dyer
Junior 7/8 Eng & Comp Sci Home Schooling, IND

Q19 Viable FDM Printing Methods for Electronic Circuitry
Theodore Willows
Junior 7/8 Eng & Comp Sci John William Boich, HDSB
PROJECT LISTING (Continued)

Q20  The Proactive Cooking Method
Ameera Sheikh, Madison Langley
Junior 7/8 Eng & Comp Sci
John William Boich, HDSB

R01  Feeding, Fueling and Forging the Future
Caroline Mahut
Intermediate 9/10 Biotechnology
M. M. Robinson High School, HDSB

R02  iDry
Kyler Swanson, Kyle Thompson
Junior 7/8 Eng & Comp Sci
Maple Grove Public School, HDSB

R03  The Effects on Reaction Time Due to Distracted Driving
Rob Cousens, Jonah Moore
Senior 11/12 Health Sciences Human North Park Collegiate and Vocational School, GEDSB

R04  Characterization of Toll-like Receptors 10 Using Multiple Sequence Alignment
Kate Kyuri Kim
Intermediate 9/10 Biotechnology
Notre Dame, HCDSB

R05  Telemetric Vest: Wearable Computing for Patient Welfare
Katie Brent
Intermediate 9/10 Eng & Comp Sci
Notre Dame, HCDSB

R06  The New Iphone
Daniel Al Sayed
Junior 7/8 Eng & Comp Sci
Regina Mundi, HWCD

R07  Can Roundabouts Help You Get Around?
Colin MacLeod
Junior 7/8 Eng & Comp Sci
Ryerson, HWDSB

R08  Efficient Lightbulbs
Matthew Sbrissa
Junior 7/8 Earth & Env Sci
St. Agnes, HWCD

R09  Motor magic
Adam Della Ventura
Junior 7/8 Eng & Comp Sci
St. Augustine, HWCD

R10  Airfoil Design
Seth Stefanchuk
Junior 7/8 Eng & Comp Sci
St. Bernadette, HWCD

R11  The Drive To Change
Kayla Corry, Noah Wirashinghe
Junior 7/8 Earth & Env Sci
St. Bernadette, HCDSB

Competitors at BASEF 2013
BASEF students attended the 2013 Intel International Science & Engineering Fair in Phoenix, Arizona.

BASEF students and chaperones in Lethbridge, Alberta at the 2013 Canada-Wide Science Fair.

Congratulations all BASEF 2014 participants

Intelligent Strategy Games
Supreme Ruler 2010
Supreme Ruler 2020
Supreme Ruler Cold War
Supreme Ruler 1936

“Detailed and heavily researched, a cross between computer war games and in-depth geo-political strategy games”

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R12 How To Build A Homemade Speaker
Nicholas Roque, Graham Meikle
Junior 7/8 Eng & Comp Sci
St. Bernadette, HCDSB

R13 Personality's Affect on Short Term Memory
Jennifer Nguyen, Victoria Hopkins
Junior 7/8 Health Sciences Human
St. David, HWCD

R14 Let There Be Light
Megan Stewart
Junior 7/8 Earth & Env Sci
St. Margaret Mary, HWCD

R15 The Effects of Apigenin, Diosmetin and Chicoric Acid on TNFα and COX-2 levels of Stimulated RAW 264.7 Macrophages
Catharine Bowman
Intermediate 9/10 Life Sciences Non-Human
St. Mary, HWCD

R16 HYDRO-ELECTRICITY - flow rate vs energy output
Madeline Webb
Junior 7/8 Eng & Comp Sci
St. Michael, HWCD

R17 Up and Away We Go
Robert Faber, Patrick Moore
Junior 7/8 Eng & Comp Sci
St. Teresa of Avila, HWCD

R18 Gliding on Air-Our Hovercraft
Devaun Dhillon, Jared Denys-Varghese
Junior 7/8 Eng & Comp Sci
Sunningdale Public School, HDSB

R19 Nuclear Power: Fusion vs Fission
Jack McBain
Junior 7/8 Earth & Env Sci
Sunningdale Public School, HDSB

R20 The Sound of Autism
Sonya Batth, Elizabeth Wei
Junior 7/8 Health Sciences Human
W. H. Morden Public School, HDSB

R21 Application of the Thermoelectric Effect on Photovoltaic Cells
Federico Cao, Adree Khondker
Senior 11/12 Eng & Comp Sci
Westdale, HWDSB

R22 Practicable Cryopreservation. Des it Exist?
Afif Bhimani, Austen Lynds-Martin
Intermediate 9/10 Health Sciences Human
White Oaks School, HDSB

BASEF Alumnus Ben Gulak,
recipient of the first annual CWSF Alumni Award
(at CWSF2013)
SPECIAL AWARDS – 2014

Special Awards are given by organizations and groups to recognize deserving projects that deal with topics of interest to the donor.

ArcelorMittal Dofasco Awards

**Chemical Testing Award**
- Prize: $100
- Criteria: Use of chemical testing and/or chemical principles to solve a technical problem.

**Commercial Award**
- Prize: $100
- Criteria: Commercial and business planning tools in developing a potentially new or improved commercial product.

**Engineering & Maintenance Technology Award**
- Prize: $100
- Criteria: Engineering & Maintenance Technology principles and design to solve a technical problem.

**Environment Award**
- Prize: $100
- Criteria: Physics, chemistry or engineering to explore or solve a technical problem associated with environmental issues.

**Hot Mill Award**
- Prize: $100
- Criteria: Creative principles and design to solve a manufacturing or process problem.

**Human Resources Training and Development Award**
- Prize: $100
- Criteria: Teaching and training techniques in explaining or exploring a technical problem.

**Information Systems Award**
- Prize: $100
- Criteria: Information Systems and design to solve a technical problem.

**Material Handling & Logistics Department Award**
- Prize: $100
- Criteria: Project that best displays the use of scientific principles in exploring or solving a problem related to material conveyance, transportation or logistics.

**Medical Department Award**
- Prize: $100
- Criteria: Scientific principles in exploring or solving a problem related to human health issues.

**Process Automation Award**
- Prize: $100
- Criteria: Project best displaying the use of Process Automation principles and design to solve a technical problem.

**Product Development Business Process Award**
- Prize: $100
- Criteria: Product Development principles and design in developing a new consumer product with commercial potential.

**Product Research & Automotive Applications Award**
- Prize: $100
- Criteria: Project that best displays the innovative application of materials, products, processes or design principles.

**Quality Systems Award**
- Prize: $100
- Criteria: Quality Systems principles and design to solve a technical problem.

**Steelmaking Award**
- Prize: $100
- Criteria: Engineering and Materials Science principles to solve a technical problem.

**Research & Development Award**
- Prize: $100
- Criteria: To a project that best displays investigative research & scientific principles to explore a technical problem.
SPECIAL AWARDS (Continued)

Artistically Inspired Display Awards
Prize: Two cash awards of $50 each.
Criteria: To the most artistically inspired displays.

Association of Iron and Steel Technology – Northern Chapter Award
Prize: 2 prizes of $100 each
Criteria: For outstanding projects related to one of the following fields: metallurgy, materials science, chemical, electrical, mechanical, industrial, environmental, civil and computer engineering

Bell Technology Award
Prize: 1st: $150, 2nd: $100
Criteria: Projects regarding communication between people, between machines or between people and machines.

Canadian Institute of Mining, Metallurgy and Petroleum (Hamilton Branch) Awards
Prize: Two cash awards of $100 each
Criteria: For projects relating to mining, metallurgy or petroleum.

Canadian Nuclear Society Awards
Prize: Two cash awards at the intermediate or senior levels for $125 each & two at the junior level for $75 each.
Criteria: For projects relating to nuclear science and engineering, energy research or climate sciences.

Cancer Assistance Program Awards
Prize: Two cash awards of $100 each.
Criteria: For outstanding projects on topics related to cancer prevention.

Chemical Institute of Canada, Hamilton Section Award
Prize: Three cash awards of $100 each.
Criteria: Deserving projects related to chemistry, chemical engineering, or chemical technology.

Colin O’Flynn Electrical Engineering Award
Prize: One Binary Explorer Board with common creative teaching material.
Criteria: An outstanding engineering project at the intermediate or senior level

Dillon Consulting Science/Engineering and Biological Sciences Awards
Prize: Two cash prizes of $250 each
Criteria: To projects showing excellence in science and/or engineering.

2013 ArcelorMittal Dofasco Best in Fair Pinnacle Award Winners
SPECIAL AWARDS (Continued)

**Doris Casey Disability Solutions Award**
- **Prize:** $100
- **Criteria:** Most innovative and creative technical solution focused on assisting individuals to overcome or compensate for physical or cognitive disabilities.

**Dr. M. Doyle Award**
- **Prize:** A $225 cash award, a plaque and a trophy for the winner's school
- **Criteria:** Best biology project.

**Dr. Colin J.L. Lock Memorial Chemistry Award**
- **Prize:** $100
- **Criteria:** Project demonstrating the best application of chemistry.

**Dr. Nicola Simmons Award in Cognition Studies**
- **Prize:** $100
- **Criteria:** An exemplary project in cognition studies.

**Electrical Construction Association of Hamilton Award**
- **Prize:** $250
- **Criteria:** Best and safest use of electricity in a creative manner.

**Farncombe Family Digestive Health Research Institute Award**
- **Prize:** Two awards of $250 each
- **Criteria:** Project that scientifically explores the fields of digestive health, related diseases or general family nutrition through experimentation or in depth literature.

**Gowlings Innovation Award**
- **Prize:** $250
- **Criteria:** Best project exploiting multiple areas of intellectual property protection, namely trademarks, patents, industrial design and copyright. The prize includes a complimentary consultation with a patent or trademark agent at the Gowlings Hamilton office.

**Hamilton Academy of Dentistry Award**
- **Prize:** Two awards of $100 each
- **Criteria:** Projects related to dentistry in general; to one specific area of dentistry; or related to oral hard & soft tissues specifically; to some aspect of the delivery of dentistry to the general (or specific) population: or an aspect related to prevention of dental disease.

**Hamilton Association da Vinci Award**
- **Prize:** $300, honorary membership in the Association and an invitation to attend meetings
- **Criteria:** The candidate who best combines personal initiative with the use of the scientific method.

**Hamilton Chamber of Commerce Innovation Award**
- **Prize:** 1st $250, 2nd $150, 3rd $100
- **Criteria:** Awarded to the most deserving projects with potential commercial applications for students from Hamilton focused on improving our local environment, communities or quality of life.

**Hamilton Wentworth Occasional Teacher Local**
- **Environment and Education Award**
  - **Prize:** $50 and certificate
  - **Criteria:** Junior project which most effectively educates others about an environmental issue.

- **Healthy Lifestyles Award**
  - **Prize:** $50 and certificate
  - **Criteria:** Junior project which most effectively educates others regarding the role of nutrition and/or exercise in maintaining a healthy lifestyle.

- **Presentation and Aesthetics Award**
  - **Prize:** $50 and certificate
  - **Criteria:** Junior project which demonstrates a high level of visual appeal, creativity and overall quality of presentation.
Saturday May 31, 2014
Southern Pines Golf Course
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BASEF Golf Outing

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BASEF Golf Outing includes:
- 9 or 18 Holes of Golf
- Best Ball Format
- Hole in One Competition
- Longest Drive (M/F) Prizes
- Closest to the Pin (M/F) prizes
- Highest Score Putting Competition
- Silent Auction
- Buffet Dinner

PLAY 18-holes for $100/golfer
Or 9-holes for $78/golfer

Registration Open: 10am **Arrive Early**
Shotgun Start: 11am for 18-holes
1pm for 9-holes

Dinner: 5pm (ish)

Funds raised will be used to support the annual Bay Area Science and Engineering Fair!

For information or to register please contact:
Dana: dana.e.bee@gmail.com
Jim: jmonkelbaan@shaw.ca
BASEF: basef@basef.ca
www.basef.ca
SPECIAL AWARDS (Continued)

Hidden Science Award
Prize: $100 with a library of Nikula Tesla’s ideas and discoveries
Criteria: Project that best reflects Nikula Tesla’s ideas and discoveries with emphasis on protecting the planet or alternate energies or increasing the efficiency of the human body.

Hillfield Strathallan College Awards of Excellence

**Design and Engineering**
Prize: $100
Criteria: Senior project that best displays innovation in identifying an ergonomic design problem.

**Environmental Sciences**
Prize: $100
Criteria: Junior or Intermediate project that best displays innovation in identifying an environmental problem.

** Biological Sciences**
Prize: $100
Criteria: Intermediate project that best displays excellence in sampling design in a health science project.

IEEE (Institute of Electrical & Electronic Engineers) Hamilton Section Awards
Prize: Two cash awards of $100 each
Criteria: Best use of Electronics in a science or engineering project, any level.

Intel Excellence Awards (affiliated with the Intel International Science & Engineering Fair)
Prize: $200 (U.S.) (to be forwarded after the fair.)
Criteria: The top winner of Computer Science category in Intermediate or Senior level.

International Science & Engineering Affiliated Fair
Awards for regional science fairs affiliated with the Intel International Science & Engineering Fair
Prize: Certificates
Criteria: deserving intermediate and senior projects related to topics of interest to the following organizations:
- **American Meteorological Society**
  - Best ability and creativity in an atmospheric science exhibit.
- **American Psychological Association**
  - Outstanding research in Psychology under the category of behavioural and social sciences.
- **ASM Materials**
  - Outstanding exhibit in materials science.
- **Association for Women Geoscientists**
  - Project by female student(s) demonstrating high standards of innovativeness and scientific excellence in the geosciences.
- **MU Alpha Theta**
  - Project demonstrating the most challenging, original, thorough and creative investigation or problem involving mathematics.
- **Ricoh Americans Corporation**
  - Most outstanding project offering the greatest potential for increasing our ability to grow environmentally friendly and socially responsible businesses.
- **Society for In Vitro Biology**
  - Project exhibiting in the areas of plant or animal in vitro biology or tissue culture.
- **Yale Science & Engineering Association**
  - Most outstanding grade 11 project exhibiting in the areas of Computer Science, Engineering, Physics, or Chemistry.

**James A. Winger Award sponsored by the Hamilton Association of Astronomers**
Prize: $200 award
Criteria: Best project in demonstrating an understanding of a topic related to astronomy or physics.
SPECIAL AWARDS (Continued)

John W. Howard Materials Research Award
Prize: $100
Criteria: Project demonstrating innovation in engineering materials, especially concrete.

Laurentian Chapter of SETAC Award
Prize: $200
Criteria: Best project and presentation on a topic related to Environmental toxicology, chemistry, pollution, contamination, remediation or environmental protection.

LEAP Award of Innovation
Prize: Free registration for the 2014 LEAP Summer Program
Criteria: Senior project (grades 9-12) by a female participant that demonstrates creativity and innovation.

McMaster University Department of Chemistry and Chemical Biology Award
Prize: $100 cash award and a certificate
Criteria: An outstanding senior or intermediate project connected to chemistry.

Mechanical Contractors Association of Hamilton Award
Prize: $250
Criteria: Best intermediate or senior engineering project.

M.G. DeGroote Institute for Infectious Disease Research Internship Award
Prize: $2,000 or a 6-week paid summer internship as a research assistant in a laboratory at the M.G. DeGroote IDR at McMaster University. Two runner-ups will be identified and given a certificate.
Criteria: Best senior student project in infectious disease, drug discovery or human health.

Hamilton-Halton Construction Association
www.hhca.ca

The Hamilton-Halton Construction Association is a non-profit organization serving over 350 members (builders and related professionals) who are actively engaged in the Industrial, Commercial, Institutional (ICI) construction industry within Hamilton.

370 York Blvd., Suite 100, Hamilton, ON L8R 3L1
Tel: 905-522-5220 Fax: 905-572-9166 Email: info@hhca.ca
SPECIAL AWARDS (Continued)

Mohawk College School of Engineering Technology Awards

**Building & Construction Sciences Award - Civil Engineering**
Prize: $50
Criteria: Project related to any branch of civil engineering.

**Building & Construction Sciences Award – Building Sciences**
Prize: $50
Criteria: Project related to building sciences, building materials, energy conservation in structures.

**Building & Construction Sciences Award – Transportation Engineering Award**
Prize: $50
Criteria: Project related to planning, design, or operation of any transportation mode or facility.

**Mathematics Awards**
Prize: Two cash awards of $50 each
Criteria: Deserving projects in categories of mathematics or statistics.

**Nelson Steel Award**
Prize: Two cash awards of $50 each
Criteria: Related to two of the following fields: Steel, Environmental or Chemistry.

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Congratulations to all Science Fair participants!

- Lifetouch has dedicated over 65 years to preserving memories with high quality photography in the school portrait business.
- Lifetouch is committed to education and our Partners-in-Education program offers a wide array of recognition materials specially designed for students and staff.

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SPECIAL AWARDS (Continued)

Primary Fluid Systems Awards
Junior or Intermediate Engineering Awards
Prize: Two cash awards each of: $250, $150, $100
Criteria: Deserving projects in junior or intermediate engineering.

Junior or Intermediate Physical Sciences Awards
Prize: Two cash prizes each of: $125, $75, $50
Criteria: Deserving projects in junior or intermediate physical sciences.

Junior or Intermediate Earth & Environmental Sciences Awards
Prize: Two cash prizes each of: $125, $75, $50
Criteria: Deserving projects in junior or intermediate earth & environment.

Procor Engineering Awards
Prize: Junior: $50, Intermediate: $100, Senior: $150
Criteria: Excellent engineering projects.

Professional Engineers Ontario Hamilton-Burlington Chapter Awards
Prize: 1st: $250, 2nd: $150, 3rd: $100
Criteria: Top 3 outstanding Engineering Projects.

Professional Engineers Ontario Oakville Chapter Engineering Awards
Prize: Three awards of $100 each
Criteria: Deserving engineering projects.

Royal Botanical Gardens Award
Prize: $100 gift certificate from RBG shop plus 1 year RBG Family Membership
Criteria: Outstanding project that addresses a pressing environmental issue and incorporates an artistic discipline.

SPIE Optics & Photonics Science Fair Award
Prize: Three awards: 1st $250, 2nd $150, 3rd $100; to be requested by winners after the fair.
Criteria: Projects best demonstrating scientific research and engineering applications of optical, photonic, imaging and optoelectronic technologies or related discipline.

University of Ontario Institute of Technology
Venture Engineering Innovation & Science Award, McMaster University
Prize: Free registration to the 2014 Venture Engineering Science Camp ($650 value).
Criteria: One junior project that demonstrates creativity and originality.

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Proud supporter of the Bay Area Science & Engineering Fair for the 8th year
AWARDS FOR EXCELLENCE IN SCIENCE & TECHNOLOGY
NEW PRIZES for 2014 FOR NEW STUDENTS AND NEW SCHOOLS

Eighteen first time competitors* will win a $500 prize.
The "Awards for Excellence in Science & Technology" are funded by a generous donor who wants to
generate interest and encourage participation in the Fair.
The awards, based on merit judging marks, will be awarded to the top 18 first-year competitors who win
$200 or less in other cash prizes.
* Must be first time for both partners of a pairs project. Award will be split between the partners.

Two schools will each win a $250 New School Award.
Funded by the same donor, the teachers from the two new** schools with the best project scores will win
these awards for use in their classroom.
** schools that have not had projects in BASEF for at least 5 years

OUR CONGRATULATIONS TO ALL YOU FUTURE EINSTEINS, NEWTONS AND CURIES

Congratulations to all participants of the Bay Area Science and Engineering Fair. We know you spent long
hours building, calculating, researching and testing to get here. OPG is fascinated by science like you are
and we’re proud to cheer on the scientists of tomorrow.

ONTARIOPower Generation opg.com
SCHOLARSHIPS

Judged and Awarded by Special Award Donors

McMaster University Faculties of Science & Engineering Tuition Awards
Prize: Five $500 tuition awards, to be redeemed upon acceptance of successful admission to either of the Faculties of Science or Engineering. (Joint student winners will split the award).
Criteria: Projects demonstrating excellence in Science or Engineering research.

Awarded to all projects earning Gold, Silver or Bronze Merit Medals

Mohawk College and Sheridan College – Award of Excellence Tuition Scholarship

Mohawk College and Sheridan College will provide a $500 scholarship to ALL BASEF 2014 Merit Award Medal (Gold, Silver, Bronze) winners. The scholarship may be used toward first year tuition upon the recipients’ acceptance and registration in any full-time program at either Mohawk College or Sheridan College. If multiple scholarships are accumulated over more than one year, only one of these scholarships may be used.

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Best Wishes to all BASEF 2014 participants

Proudly outfitting TEAM BASEF at the Canada Wide Science Fair and the Intel International Science & Engineering Fair
Proud sponsor of BASEF and the 2014 Merit Awards

“Opportunity is missed by most people because it is dressed in overalls and looks like work”

Thomas A. Edison

Primary Fluid Systems Inc.
Burlington, Ontario
www.primaryfluid.com
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Merit Awards recognize the tremendous amount of thought and effort that has gone into the projects entered into the Bay Area Science and Engineering Fair. They are the result of an extensive judging process undertaken by up to 150 independent judging volunteers who have come forward from educational institutions, local government organizations, business and industry in our regions. All participants in the Bay Area Science and Engineering Fair are eligible to win Merit Awards.

The Awards are issued to projects that meet the following criteria:

For Junior, Intermediate, Senior levels in:
- Health Sciences (Human)
- Life Sciences (Non-human)
- Physical and Mathematical Sciences
- Biotechnology
- Engineering and Computing Sciences
- Earth & Environmental Sciences

Scoring:

- over 90% & ranking in top 7.5% of category: earns Gold medal & cash award
- over 80% & next 10% of category: earns Silver medal & cash award
- over 75% & next 12.5% of category: earns Bronze medal & cash award
- over 75% & not in the top 30% of category: earns Honourable Mention certificate & cash award

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We are honoured to support the 54th Annual Bay Area Science and Engineering Fair

We applaud the achievements of all BASEF 2014 participants as future innovators, entrepreneurs and leaders of tomorrow!

McMaster University has gained an international reputation for the innovative educational programming offered by each of its six faculties.

Undergraduate teaching is conducted through the DeGroote School of Business, the Faculties of Engineering, Health Sciences, Humanities, Science, and Social Sciences, and the distinctive Arts & Science program.

future.mcmaster.ca
GRAND PRIZE AWARDS

Winners of Grand Awards have designed, researched and presented excellent projects.

ARCELORMITTAL DOFASCO PINNACLE AWARDS

BASEF’s Pinnacle Awards are presented to each of the top three projects in the fair. These awards are based on the project's Merit Award score. Each winner receives an engraved plaque; trophies are awarded to the winner’s schools.

DRS. RANJAN SUR AND MONALISA SUR AWARD

Best Intermediate or Senior level project at the fair, a plaque to the winner’s school.

ROY MIDDLETON MEMORIAL AWARD

Best Junior Level Project at the fair, a plaque to the winner’s school.

HERB GILDEA MEMORIAL TROPHY

A trophy is awarded to the secondary school accumulating the most points. Points are earned from the number of projects entered from the Intermediate and Senior levels of each school and those projects earning Gold, Silver, Bronze and Honourable Mention Merit Awards.

BASEF COMMITTEE TROPHY

A trophy is awarded to the elementary school accumulating the most points. Points are earned from the number projects entered from the Junior level of each school and those projects earning Gold, Silver, Bronze and Honourable Mention Merit Awards.
GRAND PRIZE TRIP AWARDS

INTEL INTERNATIONAL SCIENCE & ENGINEERING FAIR TRIP AWARDS

All-expense-paid advancements to the 2014 Intel International Science & Engineering Fair, to be held in Los Angeles, USA from May 11 to 16, 2014.

Up to 3 projects will be chosen from excellent exhibits at the secondary school (Intermediate & Senior) level.

Winners will be chosen from those high school entrants that declared they were able to travel into the USA (Canadian citizenship or landed immigrant status, with valid passport in-hand) as part of the BASEF registration process.

Sponsored by

CANADA WIDE SCIENCE FAIR TRIP AWARDS

Advancement to the 2014 Canada Wide Science Fair (all trip expenses paid), to be held in Windsor, Ontario, from May 10 to May 17, 2014.

Up to 16 students who have presented excellent projects will be chosen (dependent on funding levels).

All projects entered in BASEF 2014 are eligible.

Sponsors are

- Boehringer Ingelheim Canada
- City of Hamilton Economic Development Dep’t
- Esso/ Imperial Oil Foundation
- Halton Catholic District School Board
- Halton District School Board
- Hamilton-Halton Construction Association
- Hamilton-Wentworth Catholic District School Board
- Hamilton-Wentworth District School Board
- Hillfield Strathallan College
- John Deere Foundation
- Ontario Power Generation - Nanticoke Generating Station
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