

OFFICIAL PROGRAM

BASEF 2018

Presented by



ArcelorMittal
DOFASCO | HAMILTON

58th Annual Bay Area
Science & Engineering Fair
@Mohawk College
March 21 – March 27, 2018



BASEF

**Big ideas.
Infinite possibilities.**

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Mohawk College Proud Host of the Annual Bay Area Science and Engineering Fair



**Welcome to the
2018 Bay Area
Science and
Engineering Fair.**

Congratulations to all of the students who have worked hard to be part of this year's Bay Area Science and Engineering Fair. This is one of Canada's largest and longest running science and engineering fairs. Many students who've competed in this fair have gone on to win national and international competitions and are now making their mark in the world.

I also want to commend the sponsors, judges, volunteers, parents and teachers who make BASEF such a resounding success and showcase for remarkable young talent. Your support and mentorship encourages students to dream bigger, aim higher and exceed all expectations.

Mohawk is committed to providing students with an excellent education and a great college experience.

As a college with a reputation for academic excellence in health and technology, we are proud to once again host the Bay Area Science and Engineering Fair.

Congratulations again to all of the students participating in this year's fair. You have represented your schools well and you should be very proud of what you've accomplished.

Good luck!



Ron J. McKerlie
President,
Mohawk College

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Cover image is the Frame from a simulation of the merger of two black holes and the resulting emission of gravitational radiation (colored fields). Christopher E. Henze (NASA Ames Research Center): Animator

NASA/Goddard Space Flight Center, <https://svs.gsfc.nasa.gov/11086>

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Bay Area Science and Engineering Fair
c/o Mohawk College
135 Fennell Ave West, Room F175
Hamilton, Ontario L9C 0E5

e-mail: basef@basef.ca
website: www.basef.ca

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BASEF OFFICE PHONE NUMBER
(905) 575-1212 ext 4364
Noon March 21 to 1:00 pm March 24
ONLY

A MESSAGE FROM THE 2018 BASEF CO-CHAIRS

Congratulations to all the participants competing at the 2018 Bay Area Science and Engineering Fair, presented by ArcelorMittal Dofasco, BASEF's 58th year of operation. This is an opportunity for students to showcase their projects, ideas, dedication, and tenacity, and to discover themselves as promising scientists and engineers.



What does our motto “Big Ideas... Infinite Possibilities” mean to the students, and to the judges, parents, sponsors, and visitors to our fair? Since BASEF's inception in the 1960's, the scientific community has witnessed the moon landing and discovery of an Earth-sized exoplanet; the cloning of Dolly the sheep and the first human-human heart transplant; the detection of gravitational waves; the invention of the cellular phone and the internet; and the first experimental evidence of the Big Bang theory ... just to name a few. What discoveries will be made in the next 58 years that our students could be a part of?

We are grateful for the essential support from our many community sponsors and benefactors, and supporters of special student awards designed to promote additional interest and participation in the Fair.

ArcelorMittal Dofasco has returned for their twelfth year as BASEF's Title Sponsor. We are thankful for their generous funding and ongoing commitment to science, engineering, technology and mathematics. BASEF 2018 presented by ArcelorMittal Dofasco would not be possible without this support.

Our three Diamond Level sponsors are also key to the success of this year's Fair:

- Primary Fluid Systems Inc. has sponsored BASEF at the Diamond level for many years. Primary Fluid Systems Merit Award Certificates will be given to all Gold, Silver, and Bronze merit award winners.
- Mohawk College is again hosting BASEF in its state of the art David Braley Athletic and Recreation Centre. On behalf of the Organizing Committee, we extend a special thank you to Mohawk College and its staff and students, who are very generous with their time, resources and enthusiastic support.
- Leggat Auto Group returns for their third year. In addition to generous monetary support, this sponsorship provides BASEF with media expertise and support to help promote science, technology, and engineering in youth.

Together with over 50 other sponsors, benefactors and Special Award donors, our premier sponsors make it possible for BASEF's students to excel in STEM, and for BASEF to inspire young people to change the world through science, technology, engineering and mathematics (part of our Mission Statement).

This year the total value of merit awards, special awards, scholarships and trip awards is expected to top \$300,000.

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 2018 a success. Our thanks also to the over 300 volunteer Merit and Special Awards Judges and to the more than 100 other volunteers who help run registration, safety, and other fair activities.

Be sure to attend the BASEF awards ceremony on Tuesday, March 27th at 7:00 pm in the McIntyre Performing Arts Centre at Mohawk College to celebrate our students' successes.

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 the participants on a job well done and wish them the best of luck in their future endeavours.

Dan Bowman and Ingrid Munson



BASEF ORGANIZING COMMITTEE

MOHAWK COLLEGE, 2018 HOST

President, Ron McKerlie

V.P. Academic, Paul Armstrong

CO-CHAIRS

Dan Bowman, Ingrid Munson

PAST CHAIR

Helen Barton

FINANCE

Treasurer: Eleanor O'Flynn, C.P.A., C.A.

Susan Olynyk

REGISTRAR

George Geczy; Assistant: Rob Lenjosek

JUDGE IN CHIEF

Neil Manmohan

Assistants: Donna Stack-Durward, George Geczy

SCIENTIFIC REVIEW

Neil Manmohan (Judge in Chief)

Dan Bowman (Co-Chair), George Geczy (Co-Chair)

Donna Stack-Durward (Co-Chair), Dana Bee

Dr. Robert Brown, Allison Boyd, Ming Chong

Cathy Hayman, Rob Lenjosek

SPECIAL AWARDS COORDINATION

Jim Casey, Roslynne Crawford, Eleanor O'Flynn

SAFETY

Neil Manmohan

CANADA-WIDE & INTERNATIONAL CHAPERONES

CWSF: Dan Bowman (Lead), George Geczy,

Ingrid Munson, Donna Stack-Durward

IISEF: Dana Bee (Fair Director), Ming Chong

INFORMATION SYSTEMS

Gerard Chiasson, George Geczy

BASEF BURSARY PROGRAM

Linda Hazelden (Chair), Dan Bowman,

George Geczy, Ingrid Munson, Eleanor O'Flynn

STUDENT ADVISORS

Arielle Ainabe, Jack Mogus

FUNDRAISING

Sue Olynyk (Chair), Mike McNally, Renato De Tina

STUDENT ACTIVITIES

Kevin Hunt

PHOTOGRAPHY & GRAPHICS

Wayne Bowdish

MARKETING AND MEDIA

Roslynne Crawford, Christopher Ainabe

Wayne Bowdish, George Geczy

MOHAWK COLLEGE LIAISON

Dana Jacobs

SPONSOR REPRESENTATIVE

Sandy Walker

FACILITIES

David Reed, Dana Bee

CHAMPIONS OF BASEF

Ola Lunyk Child (Chair), Linda Hazelden

Ingrid Munson

OUTREACH

Roslynne Crawford, George Geczy,

Linda Hazelden, Michelle Lafontaine, Jack Mogus

VOLUNTEER RECRUITMENT AND COORDINATION

Dana Bee, Michelle Lafontaine

OFFICIAL FAIR PROGRAM

Katie Cummings, Susan Olynyk

FOOD PLANNING

Dan Prowse

DISTRICT SCHOOL BOARD ADVISORS

HCDSB: Rachel Muvrin, Lorraine Boulos

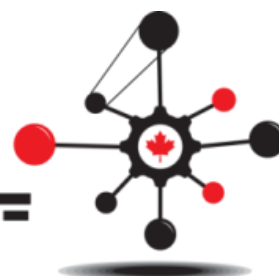
HDSB: Ingrid Munson

HWCDNB: Morris Hucal, Greg Tabone

HWDSB: Sandra Chow

Six Nations (INAC): Alex Randall

BASEF



GENERAL FUNDING SPONSORS – 2018

TITLE \$25,000 +

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DIAMOND \$10,000 +

Leggat Auto Group
Mohawk College
Primary Fluid Systems

PLATINUM \$5,000 +

HAND Association of Sewer, Watermain
and Road Contractors, operating as the
Hamilton & District Heavy Construction Ass'n
McMaster University
The Hamilton Spectator
Nikola Tesla Education Corporation

GOLD \$2,500 +

Interprovincial Corrosion Control Co.
Lifetouch
Masters Insurance
McMaster Innovation Park
Taylor Leibow Accountants & Advisors
Union Gas Ltd.

SILVER \$1,000+

Appleby College
City of Hamilton Economic Development Dept.
Canadian Linen & Uniform Service
Halton District School Board
Halton Catholic District School Board
Hamilton Police Senior Officers Ass'n
Hamilton-Wentworth District School Board
Hamilton-Wentworth Catholic DSB
Hillfield Strathallan College
John Deere Canada ULC
King- KPM Industries
Magna International
Ontario Power Generation
Posner Metals

BRONZE \$500 +

AT McLaren
Battlegoat
D.E.N.M. Engineering
Hamilton Amateur Astronomers
Hamilton Community Awareness and Emergency
Response
Hamilton Chamber of Commerce
Judy Marsales Real Estate
Lanhack Consultants
Optimist Club of Stoney Creek
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FRIENDS \$250+

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hamilton
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**Congratulates
all the
Student Exhibitors
at
BASEF 2018**

**120 King Street West
Plaza Level Suite 507
Hamilton ON L8P 4V2
Ph. (905)522-1151
E-mail: hcc@hamiltonchamber.ca**

BENEFACTORS – 2018



Through personal donations, individuals can support BASEF.

BASEF Benefactor Levels celebrate famous Canadian scientists and engineers.

Banting and Best Benefactors (\$1,000+)

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.

Mike & Sue McNally

Michael Taylor

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.

Susan & Peter 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.

Helen Barton
Kathy & Steven Brent
Renato & Enza DeTina

Dan & Debbie Bowman
Roslynne & Tom Crawford
Eleanor & John 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.

Jim Casey
Linda Millar
Dr. Nicola Simmons

Jo-Anne Connery
Wayne Schaefer

In addition, BASEF has received donations from a number of individuals who wish to remain anonymous.

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, is made available for BASEF to support BASEF's mission and goals. As at August 31, 2017, the endowment fund had grown to just over \$37,000. In February 2018, BASEF received a distribution from the fund in the amount of \$2,516.

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



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.



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BASEF 2018 SCHEDULE OF EVENTS

All at Mohawk College Fennell Campus

Gymnasium - David Braley Athletic Centre (DBARC)

Theatre – McIntyre Performing Arts Centre



Wednesday, March 21 – On-Site Project Setup/Safety Check

4:00 – 8:00 pm	Registration, set-up and safety checks	Gym
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Thursday, March 22 - Student Activity Morning & Judging of Projects

8:30 – 9:30 am	BASEF students arrive for Morning Activity (Theatre Doors Open at 8:30 am)	Theatre
9:00 – 9:10 am	Introduction – Kevin Hunt Welcome from Mohawk College – Ron McKerlie, President	Theatre
9:10 – 9:45 am	Tesla Motors Tyler Ustrzycki, Design Engineer	Theatre
9:45 – 10:25 am	Astronomy Presentation John Gauvreau, Hamilton Amateur Astronomers	Theatre
10:25 – 11:10 am	“Electricity Comes to Hamilton” Nikola Tesla Educational Corporation	Theatre
11:10 am – Noon	McMaster University Chemistry Show Professors Randy Dumont and Paul Harrison	Theatre
Noon – 1:00 pm	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.	Gym
1:00 – 4:00 pm	Judging interviews for BASEF students (BASEF participants must remain at their projects during judging)	Gym

Friday, March 23 – *Fair not open to the public or students*

Saturday, March 24 - Public Viewing

9:00 am - Noon	Public Viewing Projects are to remain in place until end of Public Viewing	Gym
Noon – 12:15 pm	Project take-down. All projects must be removed by 12:15pm	Gym

Tuesday, March 27 - Awards Ceremony

5:15 – 6:30 pm	Champions of BASEF Dinner	By Invitation Mohawk
6:00 pm	Awards Ceremony seating opens	Theatre
7:00 - 9:30 pm	Awards Ceremony	Theatre
9:30 - 10:00 pm	Meeting with chaperones for trip winners and their parents	Theatre

EMERGENCY PROCEDURES WHILE AT MOHAWK COLLEGE

Emergency Situations:

Main Security Desk	Dial 55 on College phones or press the Emergency button on Bell pay phones, or press the button on the intercom
Police/Fire/Ambulance	Dial 9-911 on College phone or 911 on Bell pay phones

Non-Emergency Situations:

Main Security Desk	Dial 2003 on College phones Dial 905-575-2003 or 905-575-2316 on other phones
--------------------	--

Emergency Evacuation

(Reference Procedure ERP 805)

Upon Discovery of Fire:

- Leave fire area immediately and close doors behind you
- Pull the nearest fire alarm
- Evacuate the building via the nearest exit
- Call Security at 55, or call 9-911 on college phones or 911 on Bell pay phones

Upon Activation of the Fire Alarm:

- Go to the nearest exit and leave the building
- Close doors behind you

Note:

- Do not use elevators or chair lifts
- Use an alternative exit if you encounter smoke
- If a person with a disability cannot be evacuated, assist them to a fire rated room such as an office or classroom that is away from smoke or fire, as close as possible to an exit. Preference should be given to rooms with two exits and a telephone or intercom.
- Notify Security and/or the Fire Department of their specific location.
- Do not re-enter the building until authorized by the Fire Department, Security, Staff or Fire Wardens

Emergency Lockdown

(Reference Procedure ERP 809)

Threat Inside the Building:

Upon Hearing the Voice Message Advising Lockdown:

- Exit all Common and Open Areas (including Library and Cafeteria):
 - Disperse... do not congregate in open areas
 - Exit the building or go to a room or area where you feel safe to enter
- If Exit is Not Possible:
 - Enter or stay in a room or area where you feel safe
 - Close and secure doors if possible
 - Turn out lights
 - Cover windows and/or stay away from windows
 - Silence cell phones/use text messaging only
 - Stay alert, quiet and out of sight
 - Disregard fire alarm signal unless in immediate danger
 - Do Not Exit Until "All Clear" Signal is heard

End of Lockdown:

- A recorded announcement of an "all clear" signal will be given to indicate the end of lockdown. Emergency Officials or College Security will conduct a door-to-door confirmation of this announcement.

Threat Outside the Building:

Hold and Secure:

- The threat is outside and everyone remains inside the building.
- Notification will be communicated by a voice message.

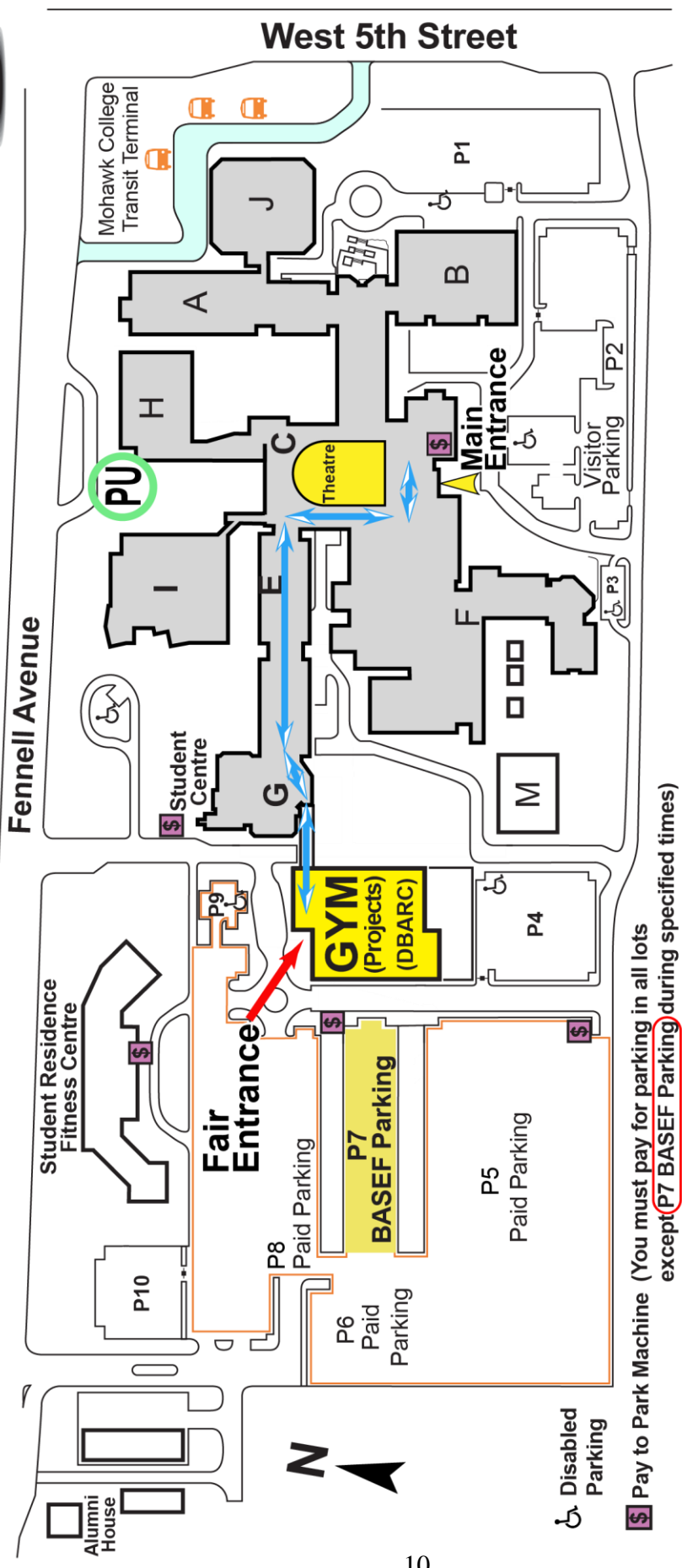
For more detailed information, please visit

<https://www.mohawkcollege.ca/about-mohawk/security-and-emergency-management/emergency-procedures>

BASEF 2018

March 21 - March 27, 2018

Mohawk College Fennell Campus



Wednesday March 21

Project setup in the Gym
4:00 pm to 8:00 pm

Student drop off at lot (P7)
Enter Gym via Fair Entrance
(1 hour complimentary parking
between 4:00pm and 9:00pm
in lot (P7) only)

Thursday March 22

Activity morning in the Theatre

Students arrive 8:30 am to 9:00 am
Bus dropoff: Main Entrance
Bus pickup: H-Wing (PU)
Student car drop off at Main Entrance
Project judging: 1:00pm - 4:00pm in Gym
Parking in lot (P7) (complimentary
parking 4:00pm to 5:00pm in lot (P7) only)

Saturday March 24

Public viewing in the Gym
9:00 am to 12:00 pm

Project takedown:
12:00 noon to 12:15
Complimentary parking in
lot (P7)

Tuesday March 27

Awards Ceremony in the Theatre
7:00 pm to 9:30 pm
Doors open at 6:00 pm

Complimentary parking in lot (P7)
after 4:00 pm

THE PARENT PAGES (OR HOW TO SURVIVE SCIENCE FAIR!)

Congratulations on your decision to support your child's participation in BASEF!

All BASEF student participants are rewarded with an enriching experience, participating 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.

BASEF awards cash prizes, awards and scholarships. The top winners have the chance to win an expense paid trip to either the national (CWSF) or international science fair (IISEF).

Location of Events: Mohawk College

Note: Science Fair projects will be located in the 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 Fennell Avenue or West 5th Street entrance. Parents are instructed to please **park in Lot P7** and walk to the DBARC gymnasium with your projects. Parking is free during project setup – but remember, only Lot P7 will be free for an hour. 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 Fennell Avenue or West 5th Street entrance. Parents are instructed to please **park in Lot P7**. There will be complimentary parking in **Lot P7** for student pick up from 4pm - 5pm on Thursday, March 22nd.

Regular parking fees apply during Activity Morning/Judging Day: Parents can buy a Pay-and-Display ticket for Activity Morning and afternoon judging for \$5/hour, for a maximum of \$15/day at the parking machines at Mohawk.

Event parking fees apply for Awards Ceremony: There will be complimentary parking in **Lot P7** after 4:00pm for awards on Tuesday evening, March 27th.

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 volunteers 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, Wednesday, March 21, 2018 @ 4:00 pm - 8:00 pm

Project set up for the fair occurs **ONLY** on **Wednesday, March 21, 2018 from 4:00 – 8:00 pm** at **Mohawk College DBARC Athletic Centre**. **Parking in Lot P7 is free for an hour**. **Park, then carry your child's 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 project has passed their safety check**. The registration process and project set-up usually take 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 22, 2018 @ 8:30 am – 12:00 noon

Students should be dropped off at the Main Entrance at Mohawk and proceed directly to the theatre. They 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 22, 2018 @ 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. Students will not be allowed to buy food from any of the College vendors.

Day 2 – Afternoon Judging, Thursday, March 22, 2018 @ 12:45 pm – 4:00 pm

Students are required to be at their projects for judging between 1:00 pm – 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 during the day.

When picking students up after Judging at 4 pm, parents may **park free in Lot P7 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 2 & 3 - Evening, after 4pm and Friday, March 23, 2018

The Fair is NOT open to students on Thursday evening or on Friday, March 23rd. The Fair Committee will be busy compiling results, writing cheques, engraving trophies and preparing for the awards ceremony.

Day 4 - Public Viewing, Saturday, March 24, 2018

Park in **Lot P7** as there is complimentary parking.

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.

Students are asked to pick up their project between 12 noon and 12:15pm. After this time, projects will be removed from the gymnasium as the volunteer staff will need to pack up the gymnasium.

The Awards Ceremony – Tuesday, March 27, 2018 7:00 pm – 9:30 pm

Park in **Lot P7** for complimentary parking after 4:00pm.

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. It is recommended to come early, as seating is limited. Doors will open to the theatre at 6:00 pm. If the theater reaches capacity, alternate seating or viewing opportunities will be provided. Details will be announced in the lobby if necessary. Students will be asked to sit near the front of the theater.

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



KING

**Encourages each
BASEF2018
exhibitor
to follow your
dreams.
Congratulations
on your projects
and all your hard
work.**

KPM Industries Ltd.

3385 Harvester Road P.O. Box 699
Burlington, Ontario L7R 3Y5
Phone: 905-639-2993
Fax: 905-333-3730
Toll Free: 1-800-461-0566
www.kpmindustries.com



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 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. The teacher guide and student workbook are available in both English and French.

The page www.basef.ca/resources contains a large number of links to a **range of resources**, with detailed descriptions. To see what a typical BASEF project looks like, **visit our project archives** at www.basef.ca/pastresults

In 2017, BASEF introduced the following initiatives for our students:

- The **TECHSEED** program offers a free computer electronics kit to qualifying students who want to explore the use of an Arduino computer in a project. **Mentors** are available to assist students with the kits and answer questions.
- A **PATENT** information booklet and workbook was developed in collaboration with Gowling WLG, a long-time special awards sponsor. This booklet transforms the legalese into understandable information for students whose project might benefit from patent protection or intellectual property laws. These are included in the student "goody bag"

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, and provide help on how to 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 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

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 BASEF Bursary Program

The BASEF Bursary Program was once again offered this year to assist students in grades 7-12 who were in need of financial assistance to complete a science fair project. Based on teacher recommendations, up to 40 students in the BASEF catchment area were eligible for a \$30.00 bursary. The projects could be a classroom activity or be entered into BASEF; we asked only that the students undertake and complete a science project to the satisfaction of their teachers. The goal of the program is to make it easier for at-risk students to participate in project-based science.

This year the bursary garnered testimonials from teachers:

"Thank you so much for considering my students. I told them that I had nominated them for this bursary and that alone gave them a boost of confidence".

"This is a great program to show that equal opportunities are given to all regardless of your socio-economic background! Seeing that our marginalized students are being recognized and are given these amazing opportunities will just boost their confidence and that confidence will stretch into so many domains in their academic and extra-curricular endeavours! Great Job!!! Thanks!!!"

BASEF thanks its 2018 sponsors





2018 BASEF Champion Teacher

The Organizing Committee
of the Bay Area Science and Engineering Fair congratulates:

Faiza El-Hales
Al-Falah Islamic School



Al-Falah
Islamic School

"She is always encouraging her students to do new and innovative science experiments, and always encouraging them..."

"Ms. El-Hales has constantly been a champion of academia and student success. I have never seen a teacher work as tirelessly as she does and it is an inspiration for me and our school."

"She deserves the recognition and award because of her excellent teaching and amazing care and compassion towards her students."

"Ms El-Hales has been actively supporting students and their science fair experiments, and always pushes students to apply to the BASEF science fair."

CONGRATULATIONS TO THE 2018 BASEF CHAMPION TEACHER!

The Champion Teacher Recognition Award for 2018 includes induction into the BASEF Champion Teacher Hall of Fame, a plaque and \$250 for use in the classroom of each winning teacher. 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 and technology 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.

THANKS TO BASEF 2018 VOLUNTEERS!

Volunteers

Alaa Abdel Karim
Avinil Paul
Brenda Sloane
Carleigh Clarke
Courtney Andrews
Dalia Sciullo
David Vidican
Ed Gilis
Eldhose Alias
Greg McFarlane
Harbir Dyer
Imogen Ames
Jacqueline Cote
Jessica Dekker
Johann Maurice Caagbay
Linfeng Zhou

Katiana Adao-Velasquez
Lu Wang
Mary Helen Gilis
Matthew DiVittorio
Michele Joch
Michelia Alba
Neil Beesley
Razan Mohamed
Reed Silva-Manmohan
Ruth Masilya
Rutul Bhavsar
Sa'ida Shdaifat
Samantha Williams
Simiat Salami
Tom Crawford
Tomislav Brkic
Trevor Hayhurst
Zoey Vu

Photo Team

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Alta Technology Ltd

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Derek Brisson

Jeremy Buchmuller

Stephanie Drywood

David Starr

Jonah Szajman

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Shayne Yeaman

Garly Sett

AVAR Environmental

Justin Lewis

Brock University

Kayla Doucette

Christine Henstridge

Nicole Keizerwaard

Dimitri Mavridis

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Louisa Salemi

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Patty Gillis

General Motors

Wayne Schaefer

Government of Ontario

Val Kim

Hamilton Academy of Dentistry

Frank Stechey

Hamilton Health Sciences

Jill Boreyko

Tricia Jarvie

Linda Mattina Salvo

Billie Tuinema

Hatch

Robyn Korenic

HCDSB

Matt Kovacs

HWCD SB

Laura Pellizzari

Kinectrics Inc.

Boguslaw Bochenski

L3 WESCAM

Andy Czebe

LHS Engineering

Dave Howard

McMaster Innovation Park

Mark Stewart

McMaster University

Anita Acai

Alexandria Afonso

Shehryar Ahmad

Shruthi Alapatt

Amjad Arrabi

Puja Bagri

Mark Bortolus

Brittany Bulbrook

Tsz Wing Cheung

Savannah Colameco

Braeden Cowbrough

Jennifer Cui

Danielle De Rango

John DeBackere

Srinivas Dharavath

Benjamin Dyer

Yosef Ellenbogen

Joshua Feather

Allison Felker

MERIT AWARD JUDGES (continued)

McMaster University (continued)

Cassandra Francella
Kezhuan Gu
Alice Guan
Esther Hutten
Varsha Jayasankar
Peter Jonasson
Portia Kalun
Mohammed Karodia
Adree Khondker
Melodie Kim
Frances Lasowski
Nicole Last
Ola Lunyk Child
Avijit Mallick
Sam Marchetti
Katherine Marczenko
Alexander Mastrolonardo
Gabriella Mattina
Siddharth Nath
Light Nozomi
Kenneth Rachwalski
Malavan Ragulojan
Cory Richman
Jacqueline Roberts
Roma Sehmi
Shabnam Shoaebargh
Kanwaldeep Singh
Anastasiya Slyepchenko
Lauren Smail
Margot Smith
Shawna Thompson
Chris Thomsen
Madeline Tong
Elena Tonti
Natalie Wagner
Jocelyn Wessels
Chenchen Xu
Yu Fan Zeng
Linfeng Zhou

Metrolinx

Scott McLaren

Mississauga Hospital

Preet Kaur

Mohawk College

John Holloway
Ian MacMillan
George Miltenburg
Brian Minaji
Brian Stefanchuk
Shantal Woolsey

Niagara Health System

Leanne Macsai

Oakville

David Fisher

OCE

Padraic Foley

Ontario Power Generation

Erica Burton
Aleksandra Jeremic

OUM

Khatija Ali

Peto MacCallum Ltd Consulting Engineers

Sean Denham

Petro-Canada

Nikola Lukenda

Region of Peel

Steve Lonz

ReproLabels

Rebecca Smith

Retired

Maureen Crane
Jim Garrett
Eric Harrison
Marilyn Hollick
Paul-Benoît Latour
Ramani Leanage
Paul Martin
Mike McNally
(Dr) Aadu Pilt
Mike Sheehy
Jo-Anne Teoh
Paul Wehrle
Norman Young
Beverly Shepard
Lynda Bowen



MERIT AWARD JUDGES (continued)

Retired (continued)

Renato De Tina
David Bowen
Neil Beesley
Graham Stratford
Marianne Bromley
Stuart Critchley
David Brown
Ray Rikic

Student

Krysta Andrews
Lisa Niro
Ali Zhang
Amanda Kako

Self-employed

Denise Brennan-Rieder
Liz Pietrzak
Helen Graham
Don Bodnar
Janet Schaefer
Brian Tuinema

Shift Energy

Daryl Letto

Sovereign Asset Management

Charles Dyer

St Josephs Healthcare

Kriatina Jackson
Bruce Young

Tarjan Management Inc.

Michael Tarjan

Tesla

Tyler Ustrzycki

Thermo Fisher Scientific

Gary Darnel
Stephen Johnson

Xerox

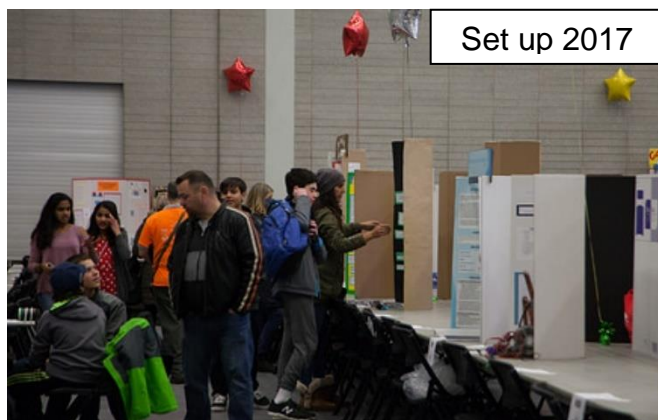
Shane Morin

Y5 Research Ltd

Pete Child

York University

Melissa Galicia



SPECIAL AWARD JUDGES

Alectra Utilities Corporation Awards

Charles Howell, Chris Jolie

ArcelorMittal Dofasco Awards

Adam Aglipay, Karen Bell, Dana Buckingham, Shannon Clark, Monica Dias, Marina Ghtas, Samiya Jahan, Rade Kuruc, Craig McGinlay, Greg Pipe, Paul Sagarika, Graham Stephen, Jonah Szajman, Kyle Waite

Artistically Inspired Display Awards

Cathy Hamilton, Cathy Hayman

Association for Iron & Steel Technology Northern Chapter Awards

Shannon Clark

Canadian Institute of Mining, Metallurgy and Petroleum (Hamilton Branch) Awards

Shannon Clark

Canadian Nuclear Society (Golden Horseshoe Branch) Awards

Elizabeth MacConnachie, Michael Tucker

Chemical Institute of Canada- Hamilton Section Awards

Don Barclay, Tom Sutton, Dragan Vuckovic

Doris Casey and Gwen Nicolls Disability Solutions Awards

Jim Casey, Al Nicolls

Dillon Consulting Limited

Chris Gibbons, Trevor Goulet

Electrical Construction Association of Hamilton Award

Chris Cahill, Mark Hopkins, Joe Kurpe

Gowling WLG Innovation Awards

Alex Ross

Hamilton Academy of Dentistry Awards

Frank Stechey

Hamilton Amateur Astronomers Award

Ann Tekatch, Bernie Venasse, Denise White

Hamilton Association for the Advancement of Literature, Science & Art

Peter Banting, Tony Petric, Ludvik Prevec

Hamilton Chamber of Commerce Innovation Awards

Paul Hawkins

SPECIAL AWARD JUDGES (Continued)

Hamilton Wentworth Occasional Teacher Awards

Barry Naidoo, Nguyen Trang

Hillfield Strathallan College Awards of Excellence

Chris Dawn, Marc Edgar

Hillfield Strathallan College Entrance Scholarship Award

Chris Dawn, Marc Edgar

John W. Howard Materials Research Award

Dr. Nicola Simmons

Indigenous Peoples of Canada Scientific Study Awards

David Reed

IEEE (Institute of Electrical and Electronic Engineers) Hamilton Section Awards

Blair MacCuish, Leyden Martinez Fonte

International Science & Engineering Affiliated Fair Awards

Samna Aziz, Ming Chong, Cathy Hayman, Varsha Jayasankar, Jack Mogus, Dan Mogilny, Emma Mogus, Lucas Penny



SPECIAL AWARD JUDGES (Continued)

Laurentian Chapter of SETAC Award

Oana Birceanu, Sunny Choi, Scott Hepditch, Gerald Tetreault

Dr. Colin J.L. Lock Memorial Chemistry Award

Dr. Nicola Simmons

McMaster University Department of Chemistry and Chemical Biology Award

Ryan Wylie

McMaster University Dept. of Chemical Engineering & Chemical Engineering Club

Ryan LaRue

McMaster University Faculty of Engineering Entrance Awards

Lindsay Bolan, Alaine Coschi

McMaster University LEAP Award of Innovation

Victoria Anderson, Steph Elder

McMaster University School of Geography and Earth Sciences Awards

Maureen Padden

McMaster University Venture Award of Innovation

Victoria Anderson, Steph Elder

McMaster University Women in Engineering Entrance Awards

Lindsay Bolan, Alaine Coschi

Mechanical Contractors Association of Hamilton Award

Dave Crawford

Michael G. DeGroote Institute for Infectious Disease Research Internship Award

Dr. Allison Kennedy

Mohawk College Building & Construction Sciences Awards

Dan Havercroft, Sean Nix

Mohawk College Computer Science & Information Technology Excellence Award

Stephen Adams, Simon Galton

Mohawk College Electrical Engineering Technology Awards

Richard Ma, Brian Stefanchuk

Mohawk College Mathematics Awards

Nasr Bistawrous, John Keyzs, Frosina Stojanovska-Pocuca

Nelson Steel Awards

Shannon Clark

Nikola Tesla Innovation Awards

Dr. Colin Campbell, Vic Djurdjevic, Angelina Ivetic, Branko Lukic, Ratko Pijanovic, Alex Stojanovic

SPECIAL AWARD JUDGES (Continued)

Oakvillegreen Conservation Association Award for the Environment

Karen Brock, Denise Brennan-Rieder

Primary Fluid Systems Awards

Sandy Walker

Procor Engineering Awards

Craig Rioux

Professional Engineers of Ontario-Hamilton/Burlington Chapter Awards

Michelle Chin, Gary Closson, David Dean, Erika Kadar, Jim Sweetman

The Research Institute at St. Joe's Hamilton, Health Research Awards

Laura Garrick, Samantha Tibshirani

Royal Botanical Gardens Award

Karin Davidson-Taylor

Dr. Nicola Simmons Award in Cognition Studies

Dr. Nicola Simmons

Society of Tribologists & Lubrication Engineers - Hamilton Section Awards

Richard Schrama, Navdeep Swach

SPIE - The International Society for Optics & Photonics Awards

Marjan Razani



BASEF Trophies on Display

BASEF Alumni Project

Attention all BASEF Participants! We Want YOU!

Congratulations on your participation in BASEF. We hope you will return and do more exciting projects in the years to come! You are now a BASEF Alumnus and we want to stay in touch with you. We would love to know what you are doing as you go to University or College and beyond or wherever life takes you.

Coming soon, we will have a "BASEF Alumni Network" where you can keep in touch and find out what your fellow Alumni are doing too.

Did you know that this regional science fair is now 58 years old? Did you know that BASEF has not always been known as that?

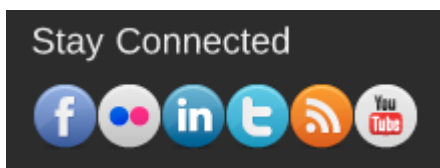
Over the years, our previous fairs have been called the Hamilton Science Fair, the Hamilton District Science Fair, the Hamilton District Science and Engineering Fair and the Hamilton and Wentworth Science and Engineering Fair. Engineering projects were allowed in first when the fair was 10 years old! The fair has been going so long you may have had parents or even grandparents who have also participated in it! We have had fairs in different venues also - at the Armoury in downtown Hamilton, at McMaster University, and at Sheridan College as well as at Mohawk College.

We have seen thousands of students just like you. The fair has been going so long that over 20,000 students have participated in it since it started way back in 1960! These were students just like you who are interested in everything about science, technology, engineering and math! Wouldn't it be interesting to learn about the marvelous and wondrous things they are doing now? We will be inviting them to join the BASEF Alumni Network also!!!

Go to our website, basef.ca, and register as an Alumnus.

Then, stay tuned for more information about the coming BASEF Alumni Network where there will be exciting initiatives for and about BASEF Alumni.

Perhaps you know someone who is a former BASEF participant. Would you connect with them and tell them about our Alumni Project and ask them to register? We would really appreciate it!



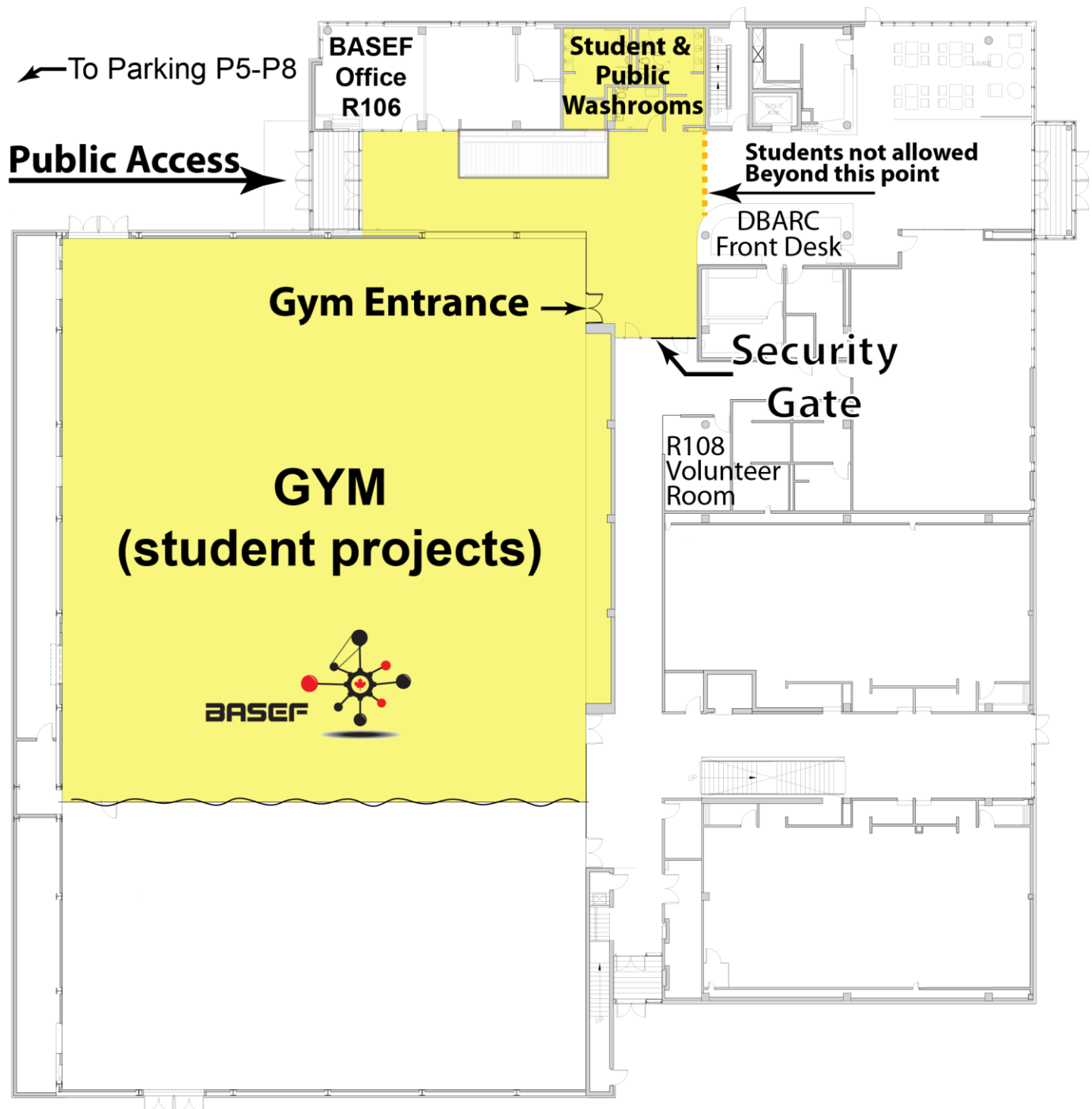
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**The David Braley Athletic and Recreation Centre
(DBARC)**

BASEF Student Boundaries

Thursday, March 22 - 12 noon to 4 pm.

Students are expected to stay at their projects during lunch and the afternoon judging period.
Mohawk College and BASEF ask that all students stay within the highlighted areas.

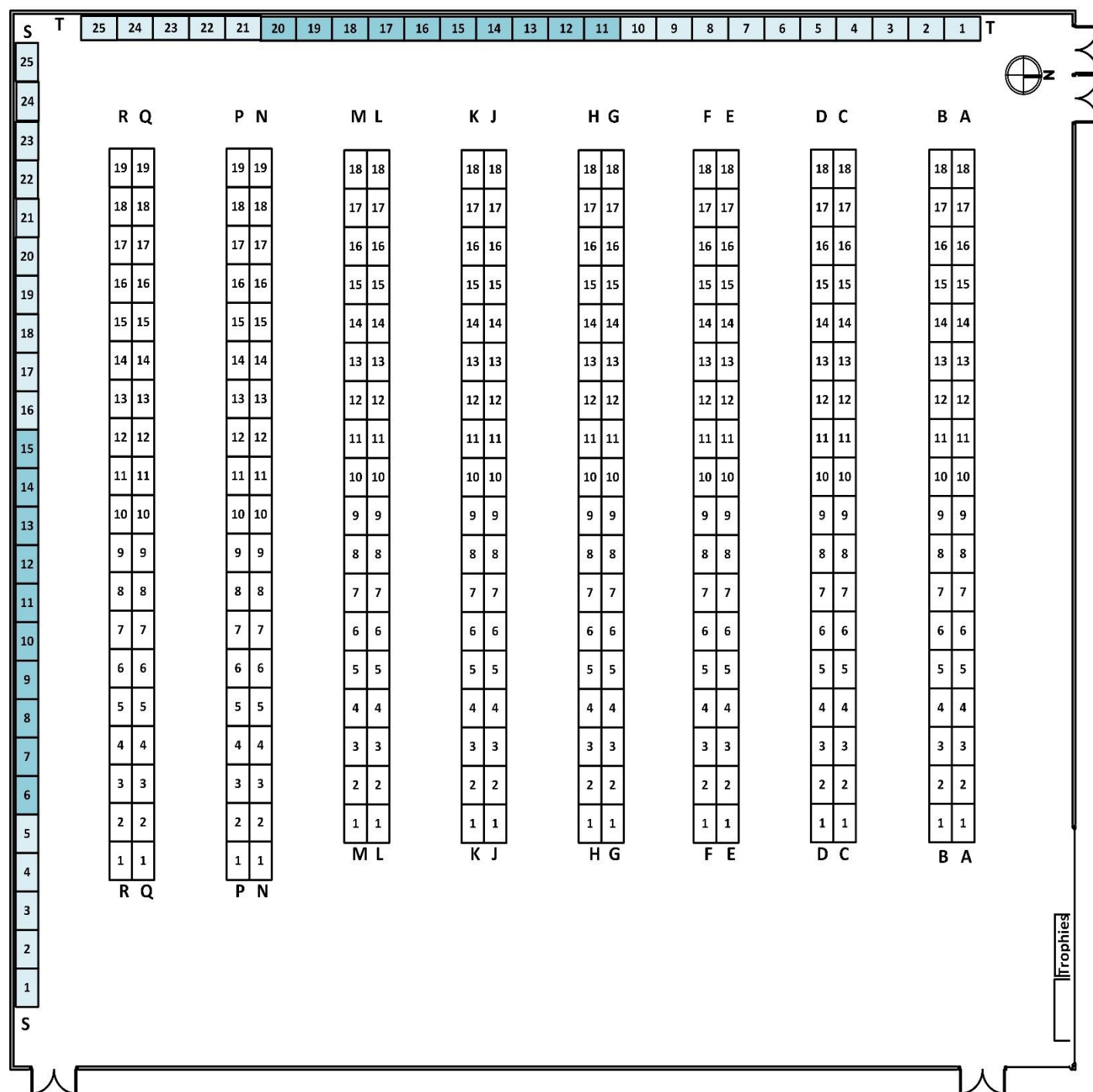
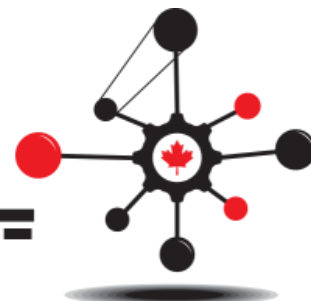


BAY AREA SCIENCE & ENGINEERING FAIR

PROJECT FLOOR LAYOUT

David Braley Athletic Centre
Mohawk College, Hamilton, ON
March 21 to March 27, 2018

BASEF



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Romachyk, Kyla	Q04	Srivatsa, Niharika	D11	Xu, Ellie	Q02
Romel, Sean	L12	Stanford, Taylor	B04	Yang, Joy	D11
Romkema, Charlotte Clara	L16	Steinhauser, Oscar	K13	Youkhana, Mary	G07
Rowe, Steven	M01	Suarez, Cristina	G15	Zaki, Matthew	Q05
Saad, Mary	P10	Sujatha Omkar Krishna, Harshini	M06	Zhang, Grace	P15
Sahni, Gurisha	F16	Sulejmanovski, Diella	C14	Zhang, Jerron	N04
Salai, Rebecca	M02	Sun, Evelyn	H18	Zhang, Juliana	P15
Samineni, Suraj	H15	Suta, Matteo	F17	Zhang, Kaylee	L14
Sang, Xavier	Q05	Sutherland, Heather	S04	Zhao, Cindy	S14
Sarao, Arjun	T16	Svetkoff, Jill	P12		
Sasitharan, Canshiya	S25	Sweezy-Munroe, Nathan	B07		
Saturnino, Anthony	P18	Syed, Ahsen	A15		
Saturnino, Joseph	N12	Syed, Zain	D04		
Savaglio, Julia	A03	Szczepaniak, Natalia	A06		
Schaible, Erika	T01	Tang, Sherry	T22		
Schmalz, Nicholas	L13	Tanver, Adyan	H09		
Scholes, Jack	T21	Tariq, Ahmed	H06		
Scoble, Emma	G01	Tasse, Devan	T04		
Scott, Kayla	B11	Tawil, Hya	C18		
Sepa, Abbey	K04	Teves, Andrew	L06		
Serafino, Gabriel	G03	Thirumala, Rohit	T11		
Shah, Anuraj	J18	Thomas, Emmalea	Q08		
Shaidle, Jacob	S16	Thomas, Hanajahawi	F03		
Shaker, Zein	Q16	Thomas, Hasena	Q06		
Shannon, Ethan	T04	Thomas, Sydnie	A11		
Shapardanis, Zachary	A09	Timpany, Brooke	Q03		
Shen, Tao	H17	Tran, Alyssa	G16		
Sheth, Arnav	N10	Tran, Jaylan	S03		
Sheth, Saahil	T09	Trikoupis, Jonathan	Q18		
Shi, Qin Ling	R04	Trojak, Alexandra	K09		
Sibley, Aidan	K07	Turkstra , Jamila	B10		
Siddiqui, Amna	M16	Uduji, Chidera	N03		
Sidhom, Karen	F08	Unnithan, Ashwin	C11		
Sienna, Joshua	N02	Usmani, Suha	L17		
Sigouin, Steven	F14	Valliant, Diana	J13		
Silva, Sofia	R16	Van Doodewaard, Ryan	M14		
Sinclair, Bryce	K03	Van Es, Zac	N07		
Singh, Emily	G05	Van Trip, Joshua	G02		
Singh, Harsimranjeet	A04	Vanevery, Quincy	A16		
		Vashishtha, Tanisha	C16		

PROJECT LISTING

A01 Which recovery drink has the most electrolytes?

Grace Beer
Junior 7/8 Life Sciences Non-Human
Appleby College, IND

A02 How well do cleaning products actually work?

Amreen Dhillon, Kara Spence
Junior 7/8 Life Sciences Non-Human
Sunningdale Public School, HDSB

A03 The Effects of Wi-Fi on Bacteria

Julia Savaglio
Junior 7/8 Life Sciences Non-Human
St. Mary Elementary School, HCDSB

A04 Chemical or Natural: a decision that could change your life!

Harsimranjeet Singh
Intermediate 9/10 Life Sciences Non-Human
North Park Collegiate and Vocational School, GEDSB

A05 Bacteria balm

Isabella Lukic
Junior 7/8 Life Sciences Non-Human
St. Paul, HWCD

A06 Plants vs. Microwaves

Mya Pellegrini, Natalia Szczepaniak
Junior 7/8 Life Sciences Non-Human
Alexander's Public School, HDSB

A07 To Grow or Not to Grow

Joseph Putrone
Junior 7/8 Life Sciences Non-Human
St. Augustine, HWCD

A08 Can Jurassic Park Come To Life?

Daniel Lee, Ruben Palacios Coca
Junior 7/8 Life Sciences Non-Human
St. Mary Elementary School, HCDSB

A09 Does the Evolution Theory Require Updating?

Zachary Shapardanis
Senior 11/12 Life Sciences Non-Human
Assumption College School, BHNCD

A10 Sunlight Grows your Plants, but What Else Does?

Jade Beaudry
Junior 7/8 Life Sciences Non-Human
St. Mary Elementary School, HCDSB

A11 Tasty Corn

Sydney Thomas
Junior 7/8 Life Sciences Non-Human
J. C. Hill Elementary, SNS

A12 Conditions for Enzymes to be Zippy

Sungwon Jung
Intermediate 9/10 Life Sciences Non-Human
North Park Collegiate and Vocational School, GEDSB

A13 Contrary Dairy

Isra Bashir, Rya Adronov
Junior 7/8 Life Sciences Non-Human
Sir William Osler, HWDSB



The Halton District School Board would like to congratulate all participating students in the Bay Area Science and Engineering Fair.

Best wishes for continued success!

Stuart Miller
Director of Education

Andréa Grebenc
Chair of the Board



PROJECT LISTING

A14 What is the activation energy (EA kJmol⁻¹) of the decomposition of concentrated (0.01mol⁻³) hydrog

Muhammad Bajwa
Senior 11/12 Life Sciences
White Oaks Secondary School,
HDSB

A15 Food Deterioration

Ahsen Syed
Junior 7/8 Life Sciences Non-Human
Ancaster Meadow, HWDSB

A16 Soiless

Darrus Skye, Quincy Vanevery
Junior 7/8 Life Sciences Non-Human
J. C. Hill Elementary, SNS

A17 How does Wifi affect plant growth?

Kyana Cheng, Graeme Laverance
Junior 7/8 Life Sciences Non-Human
Sir William Osler, HWDSB

A18 Where the Wild Things Grow

Michael Horvat
Junior 7/8 Life Sciences Non-Human
St. Paul, HWCD

B01 Determining the Effects of Gender on the Ability to Detect Lies

Chloe Comeau
Junior 7/8 Health Sciences Human
Appleby College, IND

B02 Lung Capacity

Laura De Simone
Junior 7/8 Health Sciences Human
St. Vincent de Paul, HWCD

B03 Can spices keep raw meat from spoiling

Matthew Lawford
Junior 7/8 Life Sciences Non-Human
Alexander's Public School, HDSB

B04 Effects of Radiation on Basil Growth

Taylor Stanford
Junior 7/8 Life Sciences Non-Human
Appleby College, IND

B05 The Effect Of Petri Dish Environment On The Growth Of Probiotics Applied In Fermented Products

Tianyang Gao
Senior 11/12 Life Sciences Non-Human
King's Christian Collegiate, IND

B06 How do different pH levels of liquids affect the enzymatic browning of apples?

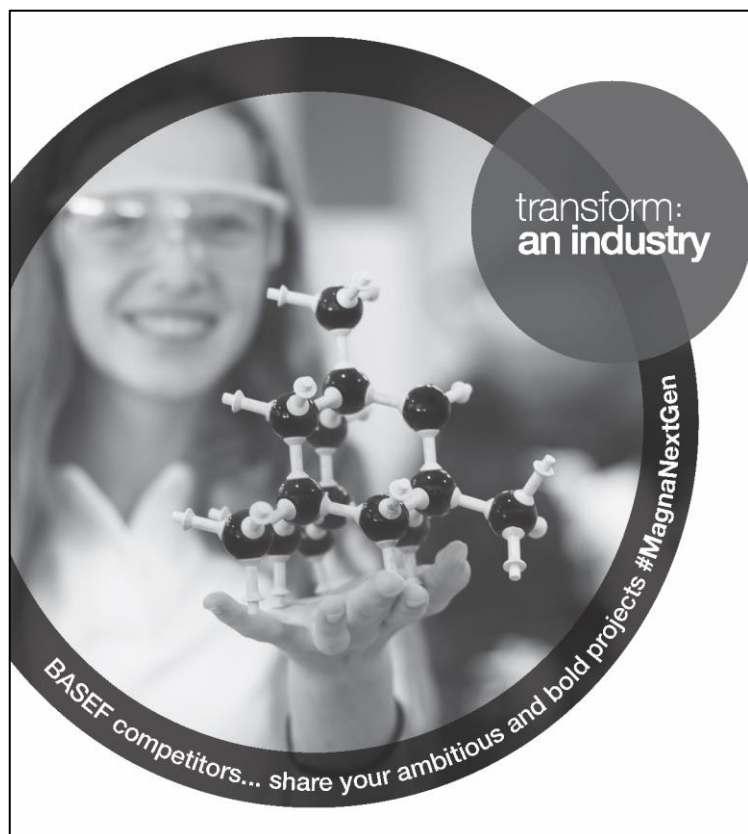
Abdullah Bajwa
Junior 7/8 Life Sciences Non-Human
Al-Falah Islamic School, IND

B07 The 5 Second Rule

Nathan Martin, Nathan Sweezey-Munroe
Junior 7/8 Life Sciences Non-Human
Ancaster Meadow, HWDSB

B08 The Power of pH

Michael Meleka, Jacob Meleka
Senior 11/12 Life Sciences Non-Human
North Park Collegiate and Vocational School, GEDSB



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B09 The Effect of Caffeine on Plant Growth

Alexander Cagampan, Coen Foster
Junior 7/8 Life Sciences Non-Human
Ancaster Meadow, HWDSB

B10 Is the 5 second rule true?

Jamila Turkstra
Junior 7/8 Life Sciences Non-Human
Sir William Osler, HWDSB

B11 Growing Bacteria

Payton Miller, Kayla Scott
Junior 7/8 Life Sciences Non-Human
Oliver M. Smith Kawennio:io, SNS

B12 Using Math and Chemistry to Investigate Biology

Hanna Gamelin, Karmanjeet Phangura
Senior 11/12 Life Sciences Non-Human
North Park Collegiate and Vocational School, GEDSB

B13 The Five Second Rule- Fact or Fiction

Aiden Cardoso
Junior 7/8 Life Sciences Non-Human
Glenn Arbour Academy, IND

B14 DI-grey or DI-no

Lisa He
Junior 7/8 Life Sciences Non-Human
Appleby College, IND

B15 Do Different Proteins Denature at the Same Temperature?

Zainab Al-Rammahi
Junior 7/8 Life Sciences Non-Human
Ancaster Meadow, HWDSB

B16 The Effect of Green Tea on the Growth of Mung Beans Exposed to Varying Concentrations of Salinity

Vidhiya Jeyanathan
Senior 11/12 Life Sciences Non-Human
Westdale Secondary School, HWDSB

B17 Quantifying Lung Macrophages to Understand Increased Susceptibility to Bacterial Pneumonia with Age

Anika Gupta
Intermediate 9/10 Life Sciences Non-Human
Westdale Secondary School, HWDSB

B18 Does electromagnetic radiation (EMR) from cell phones impact plant growth?

Matthew Broglio
Junior 7/8 Life Sciences Non-Human
St. Mary Elementary School, HCDSB

C01 Effects Beverages Have On Your Teeth

Karim Faltas
Intermediate 9/10 Health Sciences Human
Hillfield Strathallan College, IND

C02 Pop Does What?

Joshua Hagan
Junior 7/8 Health Sciences Human
Blessed Sacrament, HWCD

C03 Impact of Stereovision on Fine eye Coordination

Katelyn Matsumoto
Intermediate 9/10 Health Sciences Human
Hillfield Strathallan College, IND

C04 Music To My Ears

Lizzie McClemont
Junior 7/8 Health Sciences Human
Ancaster Meadow, HWDSB

C05 The Impact of the Digital World on Kids Aged 10-15

Yassin Reda
Junior 7/8 Health Sciences Human
Appleby College, IND

C06 The effects of refined sugar on the human body

Jasmin Davies, Chiara Calitri
Junior 7/8 Health Sciences Human
Forest Trail Public School, HDSB

C07 Use It or Lose It!

Riley Bennett, Harri Lara
Senior 11/12 Health Sciences Human
Dundas Valley Secondary School, HWDSB

C08 Coffee VS Energy Drinks

Noor Al-bander
Junior 7/8 Health Sciences Human
Sir Ernest Macmillan Public School, HDSB

C09 Feeling Frustrated Yet?

Abby Maas
Junior 7/8 Health Sciences Human
Tiger Jeet Singh Public School, HDSB

C10 Happy Humans

Haram Akram, Jathusa Balamurali
Junior 7/8 Health Sciences Human
Tiger Jeet Singh Public School, HDSB

C11 Henoch - Schonlein Purpura (HSP)

Ashwin Unnithan
Intermediate 9/10 Health Sciences Human
Orchard Park Secondary School, HWDSB

C12 Food Against Cancer

Tanvi Manku
Junior 7/8 Health Sciences Human
Joshua Creek Public School, HDSB

C13 Tackling Pseudomonas aeruginosa Biofilm Resistance: Synergy of Bacteriophage & GrapeSeed Phenolics

Krish Joshi
Intermediate 9/10 Health Sciences Human
Robert Bateman High School, HDSB

C14 How Rap vs Classical music affects your short term memory

Diella Sulejmanovski, Marwa Elkadri
Junior 7/8 Health Sciences Human
Tiger Jeet Singh Public School, HDSB

PROJECT LISTINGS

(Continued)

C15 The effect if music on blood pressure

Julie Ward, Soujanya Kumar
Junior 7/8 Health Sciences Human
John William Boich Public School, HDSB

C16 Why are autoimmune diseases so hard to cure?

Tanisha Vashishtha
Junior 7/8 Health Sciences Human
Joshua Creek Public School, HDSB

C17 Germ Wars

Noah Singh
Junior 7/8 Health Sciences Human
Holy Name of Mary, HWCD

C18 How Your Immune System Uses Its Memory

Hya Tawil
Junior 7/8 Health Sciences Human
Al-Falah Islamic School, IND

D01 Blue? or Blue?

Madeline Ivkovic, Felicia Ferro
Junior 7/8 Health Sciences Human
St. Mark, HWCD

D02 TOUCHDOWN?

Nichole Fajardo
Junior 7/8 Health Sciences Human
St. Joseph, HWCD

D03 Sad and Greased

Karissa Williams
Junior 7/8 Health Sciences Human
J. C. Hill Elementary, SNS

D04 Does Blood Pressure Effect Mental Capability

Zain Syed, Mahad Mudassar
Junior 7/8 Health Sciences Human
Escarpment View Public School, HDSB

D05 Does eye colour affect the way you receive things in different lightings, such as light or dark?

Molly Jin, Anajanaa Vimalathas
Junior 7/8 Health Sciences Human
Tiger Jeet Singh Public School, HDSB

D06 Vaping Vs Smoking

Sofia Agostino
Junior 7/8 Health Sciences Human
St. Therese of Lisieux, HWCD

D07 The Effect Of Genetically Modified T-Cells On Cancer Cells

Abdur Rehman Butt
Junior 7/8 Health Sciences Human
Al-Falah Islamic School, IND

D08 Think Fast!

Matthew Gilbreath
Junior 7/8 Health Sciences Human
St. Augustine, HWCD



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FASCINATING MINDS



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PROJECT LISTINGS

(Continued)

D09 Simple At-Home Eye Test for Communities with Low Access to Doctors

Lily Smales
Junior 7/8 Health Sciences Human
W. H. Morden Public School, HDSB

D10 Are We Equal?

Carys Washchuk, Isabella Golda
Junior 7/8 Health Sciences Human
Hillfield Strathallan College, IND

D11 The influences of different colours short-term memory

Niharik Srivatsa, Joy Yang
Intermediate 9/10 Health Sciences Human
Waterdown District Secondary School, HWDSB

D12 Insulin in Pills?

Alissa Guagliano, Daniella Iannuzzi
Junior 7/8 Health Sciences Human
St. Clare of Assisi, HWCD

D13 EYE TRICKED YOU

Esteban Jimenez, Daniel Rico
Junior 7/8 Health Sciences Human
St. Vincent de Paul, HWCD

D14 Forgot Me Not

Jadan Ascencio-Arriola
Junior 7/8 Health Sciences Human
St. Paul, HWCD

D15 Can music affect your heart rate.

Karma Mentuh, Ashani Panchal
Junior 7/8 Health Sciences Human
Escarpment View Public School, HDSB

D16 The study of Choroideremia

Bailey Gardien, Jessica Gareau
Senior 11/12 Health Sciences Human
Assumption College School, BHNCD

D17 Illusion

Haiqa Aaqil, Samiyah Khan
Junior 7/8 Health Sciences Human
Escarpment View Public School, HDSB

D18 Nail Polish: Beware The Toxic Trio

Ema Bauder
Junior 7/8 Health Sciences Human
Alexander's Public School, HDSB

E01 Water You Drinking?

Hiba Khan
Junior 7/8 Health Sciences Human
Hillfield Strathallan College, IND

E02 Concussion Discussion

Giovanni Cuda
Junior 7/8 Health Sciences Human
Immaculate Heart of Mary, HWCD

E03 The Study of Schizophrenia

Charlotte Bloor
Junior 7/8 Health Sciences Human
St. Mary Elementary School, HCDSB

E04 Memory mnemonics

Kyeriah Maracle, Ella Bomberly
Junior 7/8 Health Sciences Human
Oliver M. Smith Kawennio:io, SNS

E05 WEAR

Jelena Pavic, Rachel Mcissac
Junior 7/8 Health Sciences Human
John William Boich Public School, HDSB

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PROJECT LISTINGS

(Continued)

E06 µChip Implant In Human

Phoebe Bernardo
Junior 7/8 Health Sciences Human
Oakville Christian School, IND

E07 The power of music

Lucas Vincze
Junior 7/8 Health Sciences Human
Joshua Creek Public School, HDSB

E08 Memory Lane

Sahara Ahmad
Junior 7/8 Health Sciences Human
W. H. Morden Public School, HDSB

E09 Split Decisions: To Cut or Not to Cut

Ella Herrington
Junior 7/8 Health Sciences Human
Dalewood, HWDSB

E10 Strawberry Goodness

Taylin Bomberry
Junior 7/8 Health Sciences Human
J. C. Hill Elementary, SNS

E11 How do cancer cells become resistant to cisplatin?

Yaser Nossibeh, Aayan Naqui
Junior 7/8 Health Sciences Human
Joshua Creek Public School, HDSB

E12 The Taste of Your Tongue

Manvendra Jani
Junior 7/8 Health Sciences Human
Dalewood, HWDSB

E13 Facial Differences

Kayla Banach, Aahana Bagga
Junior 7/8 Health Sciences Human
Ancaster Meadow, HWDSB

E14 RADIATION DOMINATION

Sierra Cordeiro
Junior 7/8 Health Sciences Human
Canadian Martyrs', HWCD

E15 Does weather affect mood?

Enya Maher, Karen Situ
Junior 7/8 Health Sciences Human
Sir William Osler, HWDSB

E16 Protein VS Carbs

Adesh Mehta, Akash Mehta
Intermediate 9/10 Health Sciences
Human
Hillfield Strathallan College, IND

E17 The Phone Case

Oyinloluwa Aderibigbe, Sophia
Osborne
Intermediate 9/10 Health Sciences
Human
Hillfield Strathallan College, IND

E18 Diseases Vs. Health

Shivanshi Patel, Caitlin Cao
Junior 7/8 Health Sciences Human
W. H. Morden Public School, HDSB

F01 Your biological clock is ticking

Danyaal Abbas
Junior 7/8 Health Sciences Human
W. H. Morden Public School, HDSB

F02 Short term Memory As The Brain Matures

Livy Barbisan, Nick Weston
Junior 7/8 Health Sciences Human
John William Boich Public School,
HDSB

F03 Colour Vibes

Hanajahawi Thomas
Junior 7/8 Health Sciences Human
I. L. Thomas Odadrahonyanita, SNS

F04 The Science of Lying

Hillary Hamilton, Hannah Raymond
Senior 11/12 Health Sciences
Human
Ancaster High, HWDSB

F05 Which plant-based flavour compounds are most effective in killing oral bacteria?

Vesa Barileva
Junior 7/8 Health Sciences Human
Pilgrim Wood Public School, HDSB

F06 Distractions affecting memory.

Ava Eterno, Amanda Rankin
Junior 7/8 Health Sciences Human
St. Paul, HWCD

F07 Willpower Challenge

Talia Ventura, Emily Hilton
Junior 7/8 Health Sciences Human
Tiger Jeet Singh Public School,
HDSB

F08 Identifying the ability of Amylase to digest Resistant Starches

Karen Sidhom
Senior 11/12 Health Sciences Human
King's Christian Collegiate, IND

F09 Antioxidant Activity of Pomegranate Juice, Blueberry Juice and Lemon Juice and Baking Soda Mixture

Madison Perry
Senior 11/12 Health Sciences Human
King's Christian Collegiate, IND

F10 Handedness and Brain Lateralization are they connected?

Julia Lupton
Junior 7/8 Health Sciences Human
St. Mary Elementary School, HCDSB

F11 Be smart dont start

Tilia Skye, Marissa Skye
Junior 7/8 Health Sciences Human
J. C. Hill Elementary, SNS

F12 Taste Bud Testers

Mary O'Brien, Leah Fraser
Junior 7/8 Health Sciences Human
St. Margaret Mary, HWCD

F13 Medicines In Time

Alison Greene
Junior 7/8 Health Sciences Human
J. C. Hill Elementary, SNS

F14 FINGERPRINTS

Steven Sigouin
Junior 7/8 Health Sciences Human
St. Martin of Tours, HWCD

F15 Brainstorm

Aidan Parvinchi
Junior 7/8 Health Sciences Human
Oakville Christian School, IND

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(Continued)

F16 Can You Out-Lie Us?

Gurisha Sahni, Emily Chan
Junior 7/8 Health Sciences Human
Joshua Creek Public School, HDSB

F17 Does Sugar Affect your Short Term Memory?

Matteo Suta, Ryan Rahman
Junior 7/8 Health Sciences Human
Tiger Jeet Singh Public School,
HDSB

F18 Natures Weapon Against Cancer

Masooma Naqvi
Junior 7/8 Health Sciences Human
Escarpment View Public School,
HDSB

G01 Eating in Space: Food for Thought

Emma Scoble
Junior 7/8 Health Sciences Human
W. H. Morden Public School, HDSB

G02 Lucid Dream

Joshua Van Trip
Junior 7/8 Health Sciences Human
St. Mary Elementary School, HCDSB

G03 The Summation Sensation

Gabriel Serafino
Junior 7/8 Health Sciences Human
Immaculate Heart of Mary, HWCD

G04 Mind The Time

Nicolas Landers
Junior 7/8 Health Sciences Human
St. Bernadette, HWCD

G05 The Dreamscape

Emily Singh
Junior 7/8 Health Sciences Human
Tiger Jeet Singh Public School,
HDSB

G06 Telomere Shortening-Effects and Projections

Lipika Abbareddy
Senior 11/12 Health Sciences
Human
Assumption College School, BHNCD

G07 Does Flavored Gum Affect Short-Term Memory?

Mary Youkhana, Alishba Imran
Junior 7/8 Health Sciences Human
Tiger Jeet Singh Public School,
HDSB

G08 Think Fast!

Ella Capretta, Giselle Palakumar
Junior 7/8 Health Sciences Human
St. Therese of Lisieux, HWCD

G09 Antibacterial effects of Bromelain from the A. comosus plant on the S. mutans cariogenic bacteria

Lilian Raphael
Senior 11/12 Health Sciences
Human
King's Christian Collegiate, IND

G10 Balancing Act

Alessandro Bozzo
Junior 7/8 Health Sciences Human
Immaculate Heart of Mary, HWCD

G11 Visual, Auditory, Tactile-OH MY!

Illyria Volcansek, Faith Pagunsan
Junior 7/8 Health Sciences Human
St. Martin of Tours, HWCD

G12 The Heart of the Matter

Adriana Bozzo
Junior 7/8 Health Sciences Human
Immaculate Conception, HWCD

G13 Colour vs Memory

Sarah Jeddy, Laiba Ali
Junior 7/8 Health Sciences Human
Tiger Jeet Singh Public School,
HDSB

G14 Fingerprints in Families

Cecilia Eaton, Jaiden Mulé
Junior 7/8 Health Sciences Human
Sts. Peter & Paul, HWCD

G15 Pearly whites

Julianna Commisso, Cristina Suarez
Junior 7/8 Health Sciences Human
Immaculate Heart of Mary, HWCD

G16 Fingerprints - Correlation or Not?

Hailey Jones, Alyssa Tran
Junior 7/8 Health Sciences Human
Joshua Creek Public School, HDSB

G17 It's Basically Ginger

Antonia Giannini, Sara Legault
Junior 7/8 Health Sciences Human
Immaculate Heart of Mary, HWCD

G18 Insects Protein Of The Future

Madeleine Paul
Junior 7/8 Biotechnology
St. Mary Elementary School, HCDSB

H01 Feeling Hot, Hot, Hot

Demi Otubaga
Junior 7/8 Phys & Math Sci
Oakville Christian School, IND

H02 How permanent is permanent marker?

Crystal Ren, Vivian Pilibbossian
Junior 7/8 Phys & Math Sci
Forest Trail Public School, HDSB

H03 Which Stat Relates Best To Team Success?

Ryan Barker
Junior 7/8 Phys & Math Sci
Joshua Creek Public School, HDSB

H04 Apple: The Silent Killer!

Sahib Dhanoa, Davis Parsons
Intermediate 9/10 Phys & Math Sci
Hillfield Strathallan College, IND

H05 A Hydrogen Fuel Cell as a Renewable Energy Source Using Water Electrolysis

Neha Gupta
Junior 7/8 Phys & Math Sci
Sir William Osler, HWDSB

H06 To Float Or Not To Float

Timothy Khan, Ahmed Tariq
Junior 7/8 Phys & Math Sci
Tiger Jeet Singh Public School,
HDSB

PROJECT LISTINGS

(Continued)

H07 Dry ice vs manufactured carbonation

Ritaj Aboumar, Sharan Banwait
Junior 7/8 Phys & Math Sci
Joshua Creek Public School, HDSB

H08 The Future of Energy

Shrijah Narendiran
Junior 7/8 Biotechnology
Alexander's Public School, HDSB

H09 Helpful or Harmful, The Effects of Hydrogen Peroxide on Seed Germination

Mustafa Mirza, Adyan Tanver
Junior 7/8 Biotechnology
Al-Falah Islamic School, IND

H10 Dissolution Rates of Different Pain Pills in the Normal Acidity Levels of Stomach

Ghufran Al-Bander
Senior 11/12 Biotechnology
Robert Bateman High School, HDSB

H11 Determining Whether the Vitamin C in in Yellow Peppers is Affected by Microwaves

Kalina Morrison
Senior 11/12 Biotechnology
King's Christian Collegiate, IND

H12 Nice Rice

Angela Cen
Junior 7/8 Biotechnology
W. H. Morden Public School, HDSB

H13 Utilizing H₂O₂ and Iodine in crystal form to eliminate algae in the water

Gyu Tae Bae
Intermediate 9/10 Biotechnology
White Oaks Secondary School, HDSB

H14 What's the Best Way to Wash your Produce?

Sabrina Mateen, Areeba Hayat
Junior 7/8 Biotechnology
Escarpment View Public School, HDSB

H15 Shine to Save

Suraj Samineni
Intermediate 9/10 Biotechnology
Hillfield Strathallan College, IND

H16 Can Nanomedicine Cure Cancer?

Lubna Al-shamari, Manav Patel
Junior 7/8 Biotechnology
Escarpment View Public School, HDSB

H17 Biomass-The Future of Our Waste

Aleander Chung, Tao Shen
Junior 7/8 Biotechnology
W. H. Morden Public School, HDSB

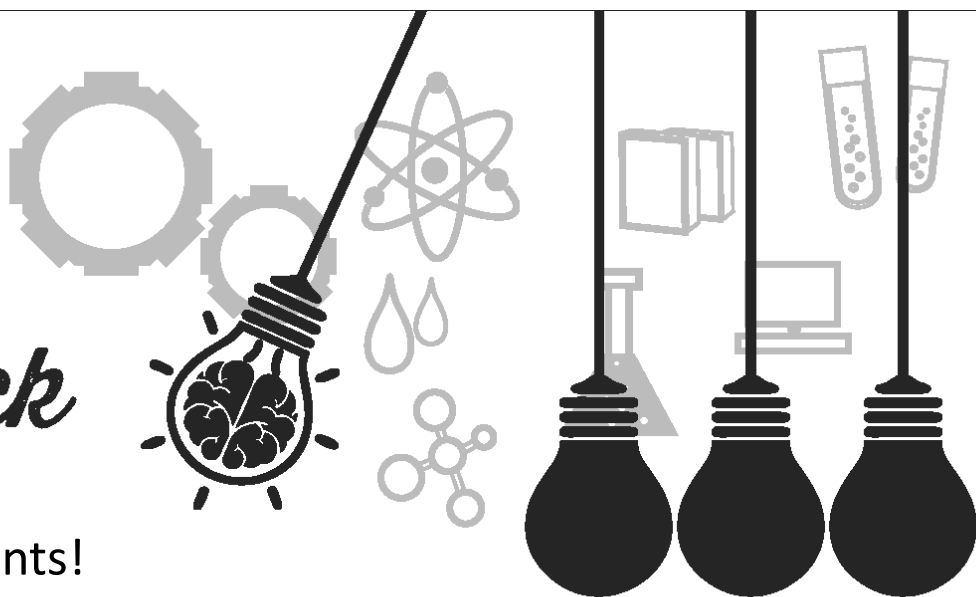
H18 Investigating the Antibacterial Properties of Silver Nanoparticles on Staphylococcus Epidermidis

Evlyn Sun
Senior 11/12 Biotechnology
King's Christian Collegiate, IND



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BASEF participants!



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J01 Cool Attraction

Alexandra Farkas
Junior 7/8 Phys & Math Sci
St. Augustine, HWCD

J02 What's Cooking?

Chantelle Guorgui
Junior 7/8 Phys & Math Sci
Oakville Christian School, IND

J03 The Impossible Sound

George Pentchev
Junior 7/8 Phys & Math Sci
W. H. Morden Public School, HDSB

J04 Determining Which Mixture of Ethanol Will Produce the Most Energy

Jake Little
Senior 11/12 Phys & Math Sci
King's Christian Collegiate, IND

J05 Freezing Point Depression of Different Salts in Varying Concentrations in Solution

Kailas Chari
Junior 7/8 Phys & Math Sci
Maple Grove Public School, HDSB

J06 Deflate-Gate

Ethan Restauri, Christopher Ptaszek
Junior 7/8 Phys & Math Sci
St. Augustine, HWCD

J07 Pop Can Solar Heater

Juancarlos Longo
Junior 7/8 Phys & Math Sci
St. Augustine, HWCD

J08 UV Spectrophotometric Analysis of Caffeinated Beverages

Mai Ngo
Senior 11/12 Phys & Math Sci
King's Christian Collegiate, IND

J09 Static Sparks

Owen Belbeck
Junior 7/8 Phys & Math Sci
St. Augustine, HWCD

J10 Blue shift? Red shift? Why are they blue and red?

Jinming Liu
Senior 11/12 Phys & Math Sci
MacLachlan College, IND

J11 Science Of Spin

Tobin Davis, Luke Misa
Junior 7/8 Phys & Math Sci
W. H. Morden Public School, HDSB

J12 IF YOU SPRAY WILL BACTERIA STAY

John Eric Rivas-Gonzalez
Junior 7/8 Phys & Math Sci
St. John Paul II, HWCD

J13 Epsom Salts -- Do They Work?

Diana Valliant
Junior 7/8 Phys & Math Sci
Ancaster Meadow, HWDSB

J14 Kinetic energy: Can it stop global warming?

Sofia DiGiacomo
Junior 7/8 Phys & Math Sci
Sir William Osler, HWDSB

J15 Stain, Stain, Go Away!

Erin Greene, Halle Martin
Junior 7/8 Phys & Math Sci
J. C. Hill Elementary, SNS

J16 Can it Filter?

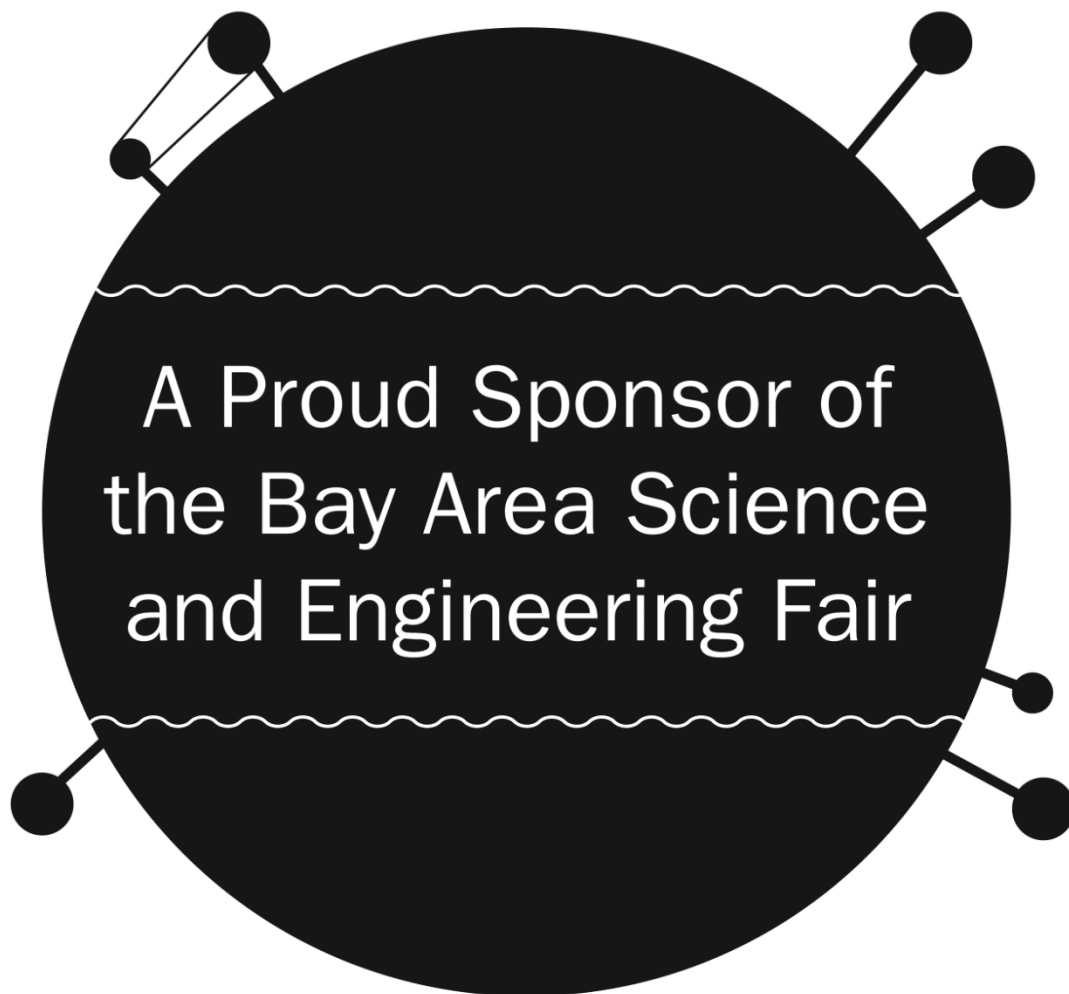
Sanjana Vijayarajah
Junior 7/8 Phys & Math Sci
Oxford Learning Academy, IND



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PROJECT LISTINGS

(Continued)

J17 Gravitational Wave

Astronomy

Arya Pisharody
Junior 7/8 Phys & Math Sci
John William Boich Public School,
HDSB

J18 Rusting of Metal

Anuraj Shah
Junior 7/8 Phys & Math Sci
Joshua Creek Public School, HDSB

K01 Harnessing the Power of Ocean Waves

Zainab Iftikhar
Intermediate 9/10 Phys & Math Sci
Hillfield Strathallan College, IND

K02 Tidal Zone Can Tidal Energy Sustain Profitable Return On Investment

Natalia Garbacz
Junior 7/8 Phys & Math Sci
St. Mary Elementary School, HCDSB

K03 Big Bang

Michael Oliver, Bryce Sinclair
Junior 7/8 Phys & Math Sci
St. Augustine, HWCD

K04 Burning Softly

Abbey Sepa
Junior 7/8 Phys & Math Sci
St. Augustine, HWCD

K05 Can you charge a phone using a lemon?

Emily Elliott, Amrit Grewal
Junior 7/8 Phys & Math Sci
Joshua Creek Public School, HDSB

K06 The Best Insulator

Ghishawa Ishfaq
Junior 7/8 Phys & Math Sci
Al-Falah Islamic School, IND

K07 Radioactivity at Home

Aidan Sibley
Intermediate 9/10 Phys & Math Sci
Garth Webb Secondary School,
HDSB

K08 Coat of Steel

Keith Allan
Junior 7/8 Phys & Math Sci
Oakville Christian School, IND

K09 Charge it Up!

Alexandra Trojak
Junior 7/8 Phys & Math Sci
Oakville Christian School, IND

K10 The Effect Of Acid Rain On Building Materials

Shehwar Khan
Junior 7/8 Phys & Math Sci
Al-Falah Islamic School, IND

K11 Quantum Levitation

Ignacio Corral, Calvin Foster
Junior 7/8 Phys & Math Sci
Burlington Christian Academy, IND

K12 Hydroelectricity and How it Works

Simran Matharu
Junior 7/8 Phys & Math Sci
Ancaster Meadow, HWDSB

K13 Balls of Speed

Oscar Steinhauser, Aly Barakat
Junior 7/8 Phys & Math Sci
W. H. Morden Public School, HDSB

K14 Hot or Not? Temperature and Photovoltaic Output

Oliver Brenninkmeijer
Junior 7/8 Phys & Math Sci
Oakville Christian School, IND

K15 The Synthesis of Quantum Dots using Hydrocarbons

Anne Jing
Senior 11/12 Phys & Math Sci
Assumption College School, BHNCD

K16 Do It Yourself Filter

Eddy Iorio
Junior 7/8 Phys & Math Sci
Dalewood, HWDSB

K17 #Take The Challenge

Abbie Doolittle, Ryedan Annett
Junior 7/8 Phys & Math Sci
Emily C. General Elementary School,
SNS

K18 Crime Solving Chromatography: Comparing Different Types

Hafsah Raheel
Junior 7/8 Phys & Math Sci
Al-Falah Islamic School, IND

L01 Shampoo

Julia Meze, Alexandra Pappas
Junior 7/8 Phys & Math Sci
St. Mary Elementary School, HCDSB

L02 Eco-friendly solution to destructive road salt

Christina Hanna, Erica Mitton
Senior 11/12 Phys & Math Sci
King's Christian Collegiate, IND

L03 Under Pressure!

Dunya Elbarbari
Junior 7/8 Phys & Math Sci
Oxford Learning Academy, IND

L04 Going Going Gone!

Devan Lickers, Liam Porter
Junior 7/8 Phys & Math Sci
J. C. Hill Elementary, SNS

L05 The Effect of Different Materials on Cell Phone Reception

Jannah Khaja
Junior 7/8 Phys & Math Sci
Al-Falah Islamic School, IND

L06 Arrow Dynamics

Andrew Teves
Junior 7/8 Phys & Math Sci
John William Boich Public School,
HDSB

L07 A Pretty Penny

Carmela Medeiros, Grace Pellegrino
Junior 7/8 Phys & Math Sci
Immaculate Heart of Mary, HWCD

PROJECT LISTINGS

(Continued)

L08 Friction? Friction.

Jessica Chen
Junior 7/8 Phys & Math Sci
Dalewood, HWDSB

L09 The Effect Of Friction on Efficiency

Moosa Adnan, Emaan Kotwal
Junior 7/8 Phys & Math Sci
Al-Falah Islamic School, IND

L10 The Investigation of Technology Within the Game of Golf

Will Missere
Junior 7/8 Phys & Math Sci
Appleby College, IND

L11 Black Hole From Beginning to End

Kimia Hosseinifar
Junior 7/8 Phys & Math Sci
Dalewood, HWDSB

L12 Detecting skin cancer with neural networks

Sean Romel
Senior 11/12 Eng & Comp Sci
North Park Collegiate and Vocational School, GEDSB

L13 Through The Roof

Nicholas Schmalz
Junior 7/8 Eng & Comp Sci
St. Augustine, HWCD

L14 Furniture Transformer to Reduce Costs and Save Space

Kaylee Zhang
Junior 7/8 Eng & Comp Sci
Norwood Park, HWDSB

L15 Deciphering Oobleck: A Non-Newtonian Fluid

Minahil Khawaja
Junior 7/8 Eng & Comp Sci
Al-Falah Islamic School, IND

L16 The Multi Purpose Dog House

Rebecca Evalena de Kleer, Charlotte Clara Rmkema
Junior 7/8 Eng & Comp Sci
John Knox Christian School (Oakville), IND

L17 Water Filtration For Desert Communities

Suha Usmani
Junior 7/8 Eng & Comp Sci
Chris Hadfield Public School, HDSB

L18 BinDock

Evan Kong, Hasan Ali
Junior 7/8 Eng & Comp Sci
Ancaster Meadow, HWDSB

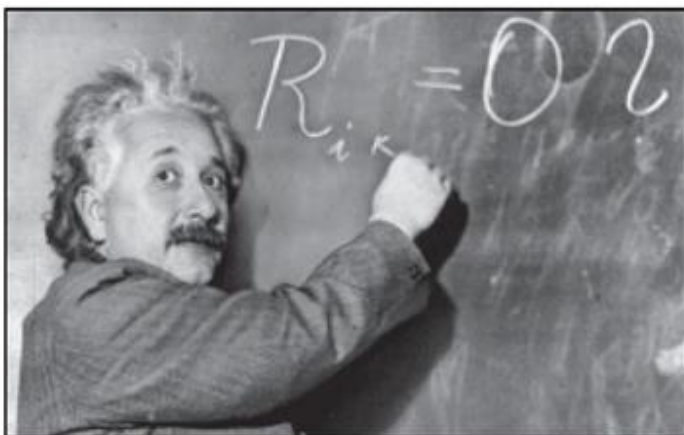
M01 Current Thinking

Steven Rowe
Junior 7/8 Eng & Comp Sci
W. H. Morden Public School, HDSB



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~ Albert Einstein

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David Hansen, Director of Education**

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PROJECT LISTINGS

(Continued)

M02 The E - Case

Amanda Powell, Rebecca Salai
Junior 7/8 Eng & Comp Sci
John William Boich Public School,
HDSB

M03 Daily Carbon Reducer

Savannah Baker
Intermediate 9/10 Eng & Comp Sci
Hillfield Strathallan College, IND

M04 What Light Generates What Watts?

Will Cockwell
Junior 7/8 Eng & Comp Sci
Appleby College, IND

M05 Automated Bottle Opener

Mitchell Clapperton
Junior 7/8 Eng & Comp Sci
Guy B. Brown, HWDSB

M06 Energy On Wheels

Harshini Sujatha Omkar Krishna
Junior 7/8 Eng & Comp Sci
St. Therese of Lisieux, HWCD

M07 The Electricity Generating Drum: Generating Voltage using Piezoelectricity

Satyam Singh
Intermediate 9/10 Eng & Comp Sci
King's Christian Collegiate, IND

M08 Sleeping Jacket

Abigail Kaye, Elianna Soh
Junior 7/8 Eng & Comp Sci
John Knox Christian School
(Oakville), IND

M09 Hot Ice: Exothermic reactions

Malaika Menon
Junior 7/8 Eng & Comp Sci
Al-Falah Islamic School, IND

M10 Can aquaponics make aquaculture sustainable and reduce Co2

Vikram Ogale
Junior 7/8 Eng & Comp Sci
John T. Tuck Public School, HDSB

M11 EVERSE: Electric Vehicle Energy Recovery and Safety Enhancement

Michael Wolfe
Intermediate 9/10 Eng & Comp Sci
King's Christian Collegiate, IND

M12 Amazing water works

Yashwanth Gunturi
Junior 7/8 Eng & Comp Sci
Escarpment View Public School,
HDSB

M13 Central Insulating Backpacks

Maya Peebles, Carol Gerges
Junior 7/8 Eng & Comp Sci
John Knox Christian School
(Oakville), IND

M14 Gauss Rifle: A Way Forward

Ryan Van Doodewaard
Junior 7/8 Eng & Comp Sci
Oakville Christian School, IND

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your endeavours!



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Hamilton, ON L8L 8K4

PROJECT LISTINGS

(Continued)

M15 JCPS at your fingertips

Jaiden Ratti
Junior 7/8 Eng & Comp Sci
Joshua Creek Public School, HDSB

M16 The Effect of Temperature on the Corrosion of Iron

Amna Siddiqui
Junior 7/8 Eng & Comp Sci
Al-Falah Islamic School, IND

M17 E.G.B. Electricity Generating Bicycle

Katey Brand, Dushan Veljkovic
Junior 7/8 Eng & Comp Sci
Alexander's Public School, HDSB

M18 Tower Power

Daniel Guay
Junior 7/8 Eng & Comp Sci
St. Augustine, HWCD

N01 Hello Attendo

Eniola Olutunfese
Junior 7/8 Eng & Comp Sci
John William Boich Public School, HDSB

N02 Don't Freeze!

Joshua Sienna
Junior 7/8 Eng & Comp Sci
St. Augustine, HWCD

N03 C.H.A.R.G.E I.T.

Chidera Uduji
Junior 7/8 Eng & Comp Sci
St. Mary Elementary School, HCDSB

N04 Non-Newtonian to Non concussion

Kaushihaan Ahilan, Jerron Zhang
Junior 7/8 Eng & Comp Sci
Dalewood, HWDSB

N05 Lost In Translation

Jacob Colatosti
Junior 7/8 Eng & Comp Sci
St. Luke, HWCD

N06 Water Water Everywhere Not A Drop To Drink: Desalination of Water Using Solar Power

Darian Ellis
Intermediate 9/10 Eng & Comp Sci
Hillfield Strathallan College, IND

N07 PH 3700

Zac Van Es
Junior 7/8 Eng & Comp Sci
John Knox Christian School (Oakville), IND

N08 S.A.S.T.

Malak Al-Ozaibi, Autumn Magill
Junior 7/8 Eng & Comp Sci
John William Boich Public School, HDSB



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PROJECT LISTINGS

(Continued)

N09 Don't Burn It Up, Let's Heat It Up-An Effective Alternative to Non-Renewable Energy: Thermoelectricity

Syed Amman Waheed, Turjo Rafid
Intermediate 9/10 Eng & Comp Sci
Westdale Secondary School,
HWDSB

N10 Dew Point

Arnav Sheth
Junior 7/8 Eng & Comp Sci
W. H. Morden Public School, HDSB

N11 CORRODING COPPER: The Effect of pH Water Levels on Copper Plumbing Systems

Evan Cotter
Junior 7/8 Eng & Comp Sci
St. Augustine, HWCD

N12 PIPS - Patient Indoor Positioning System - UWB and IoT

Joseph Saturnino
Intermediate 9/10 Eng & Comp Sci
Bishop Ryan Secondary School,
HWCD

N13 Pee-Tricity

Connor McCourt
Junior 7/8 Eng & Comp Sci
Oakville Christian School, IND

N14 Resuscitating the CPR Mask

Nyah Kuzmicka, Olivia Drag
Intermediate 9/10 Eng & Comp Sci
Hillfield Strathallan College, IND

N15 The portable cooling Device

Steven Iliev
Junior 7/8 Eng & Comp Sci
Alexander's Public School, HDSB

N16 SpiraLinear: Rethinking Efficiency in Linear Motors

Paul (Kyum) Lee
Junior 7/8 Eng & Comp Sci
Dalewood, HWDSB

N17 Heated Scuba Suit

Ava Kuyvenhoven, Evangeline Bouganim
Junior 7/8 Eng & Comp Sci
John Knox Christian School
(Oakville), IND

N18 What makes me Crack

Niko Jurincic, Christopher Raab
Junior 7/8 Eng & Comp Sci
St. Paul, HWCD

N19 Dress Up Warm

April Sujeong Lim
Junior 7/8 Eng & Comp Sci
John Knox Christian School
(Oakville), IND

P01 Replaced by Bioplastics?

Julia Monteith, Andrea Da Re
Junior 7/8 Eng & Comp Sci
Forest Trail Public School, HDSB

P02 Microfibres 4 you ?

Ayesha Mehmood, Zainab Mehmood
Intermediate 9/10 Eng & Comp Sci
Robert Bateman High School, HDSB

P03 The Eco Bird Saver

Mani Nabovati
Junior 7/8 Eng & Comp Sci
Alexander's Public School, HDSB

P04 Find My Friend

Jessie Fowler, Nicole Kunzli
Junior 7/8 Eng & Comp Sci
John William Boich Public School,
HDSB

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PROJECT LISTINGS

(Continued)

P05 Nikola Tesla (Tesla Coil)

Kevin Sos-Medeiros
Junior 7/8 Eng & Comp Sci
St. Luke, HWCD

P06 You Used to Call Me on My Cellphone

Jordon King, Nathan Apará
Junior 7/8 Eng & Comp Sci
Oakville Christian School, IND

P07 Testing of Environmental Friendly Corrosion Solutions and Commercial Applications

Alexander Flannery
Intermediate 9/10 Eng & Comp Sci
King's Christian Collegiate, IND

P08 Shine With Solar Energy

Anastasia Anastasakis
Junior 7/8 Eng & Comp Sci
St. Mary Elementary School, HCDSB

P09 High Altitude Balloon

Avyukta Nair
Junior 7/8 Eng & Comp Sci
Halton Waldorf School, IND

P10 Pizza Hot: The Insulating Pizza Box

Mary Saad
Junior 7/8 Eng & Comp Sci
John Knox Christian School
(Oakville), IND

P11 How to Minimize Heat Gain and Loss in Your House

Dylan Kwan, Carter Willan
Junior 7/8 Eng & Comp Sci
John Knox Christian School
(Oakville), IND

P12 Solar Air Heater

Jill Svetkoff, Gabriella Wright
Junior 7/8 Eng & Comp Sci
John Knox Christian School
(Oakville), IND

P13 Natural Filters that Filter Heavy Metals from Contaminated Water

Alice Gales
Intermediate 9/10 Eng & Comp Sci
King's Christian Collegiate, IND

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P14 Brace Yourself!

Gillian Ayotte, Peyton Bear
Junior 7/8 Eng & Comp Sci
Hillfield Strathallan College, IND

P15 The Secret to Night Vision

Juliana Zhang, Grace Zhang
Junior 7/8 Eng & Comp Sci
Escarpment View Public School,
HDSB

P16 Can Plastic Help Save Earth's Precious Materials

Aisha Chaudhry
Junior 7/8 Eng & Comp Sci
Al-Falah Islamic School, IND

P17 Automatic Curtains

John Ibrahim
Junior 7/8 Eng & Comp Sci
John Knox Christian School
(Oakville), IND

P18 HCDPS - Hot Car Death Prevention System

Anthony Saturnino
Junior 7/8 Eng & Comp Sci
St. Margaret Mary, HWCD

P19 Heat House

Simone Beier
Junior 7/8 Eng & Comp Sci
John Knox Christian School
(Oakville), IND

Q01 Is old better than old?

Evan Skye, Alyssa Lickers
Junior 7/8 Eng & Comp Sci
J. C. Hill Elementary, SNS

Q02 C.O.D.I.A. (Computer operated & delightfully intelligent assistant)

Ellie Xu
Senior 11/12 Eng & Comp Sci
Garth Webb Secondary School,
HDSB

PROJECT LISTINGS

(Continued)

Q03 The Dementia Smarthouse

Natasha McIntyre, Brooke Timpany
Junior 7/8 Eng & Comp Sci
Alexander's Public School, HDSB

Q04 Fight The Fertilizer

Jamie Collis, Kyla Romachyk
Junior 7/8 Eng & Comp Sci
John William Boich Public School,
HDSB

Q05 The +Pack

Xavier Sang, Matthew Zaki
Junior 7/8 Eng & Comp Sci
John Knox Christian School
(Oakville), IND

Q06 Four Pourer

Hasena Thomas
Junior 7/8 Eng & Comp Sci
I. L. Thomas Odadrahonyanita, SNS

Q07 Hydrophobic Sand

Sufyaan Kotwal
Junior 7/8 Earth & Env Sci
Al-Falah Islamic School, IND

Q08 Hurricanes vs Tornadoes

Emmalea Thomas, Aalyha Martin
Junior 7/8 Earth & Env Sci
J. C. Hill Elementary, SNS

Q09 Is the ocean swell?

Kieran Collins
Junior 7/8 Earth & Env Sci
Sir William Osler, HWDSB

Q10 A Study of Environmentally Friendly Alternatives to Grass

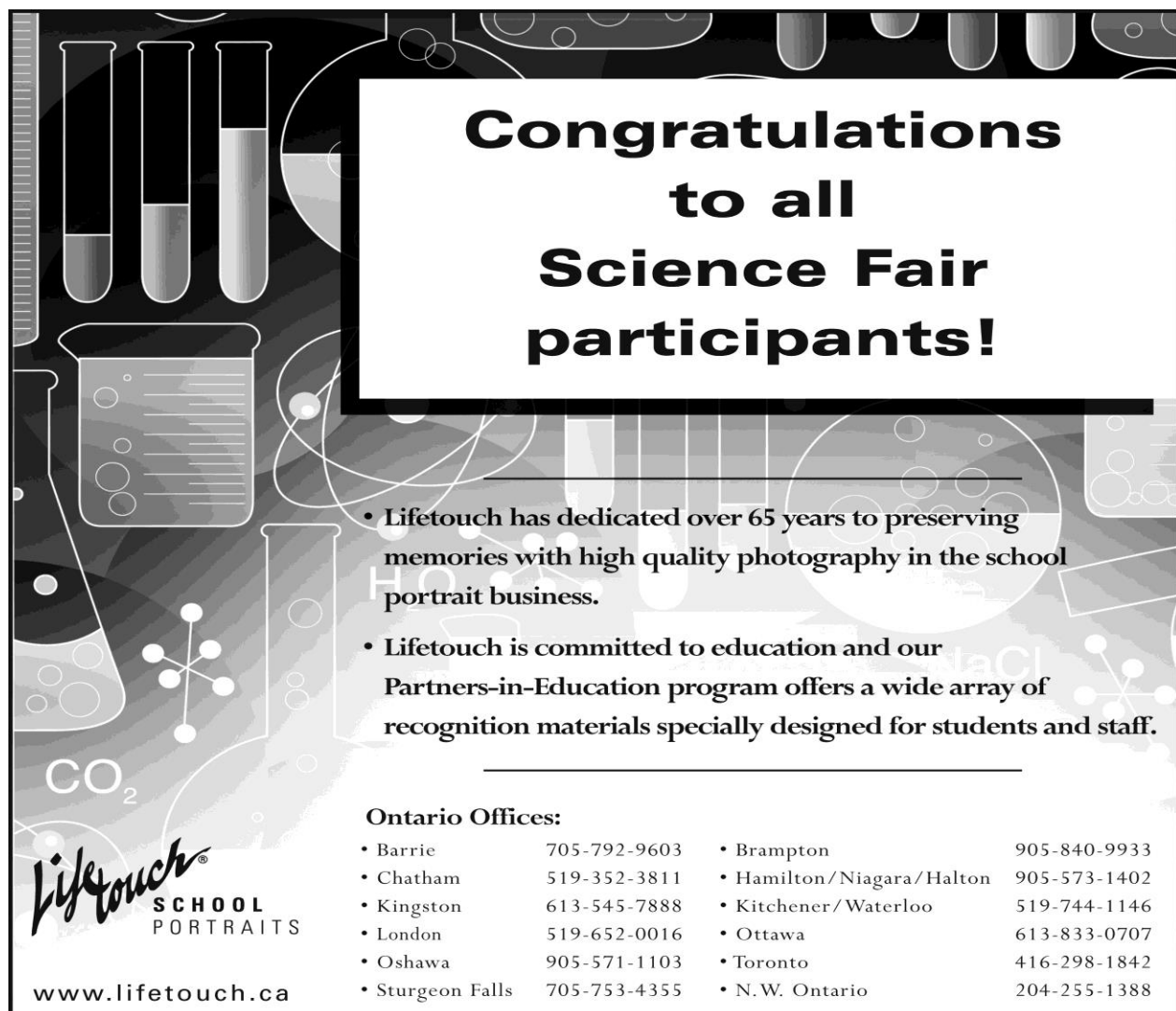
Neil Smith
Junior 7/8 Earth & Env Sci
Oakville Christian School, IND

Q11 Underwater Earthquake

Samantha Guay, Teaghan Kay
Junior 7/8 Earth & Env Sci
St. Augustine, HWCD

Q12 Rezscapes

Evie Longboat, Kadence Green
Junior 7/8 Earth & Env Sci
J. C. Hill Elementary, SNS



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PROJECT LISTINGS (Continued)

Q13 Synthetic Soil

Muhammad Khan, Skylar Liang
Senior 11/12 Earth & Env Sci
Glendale, HWDSB

Q14 Extraction of Pineapple Leaf Fibre and its Strengthening Abilities on Bioplastic

Mimi Han
Senior 11/12 Earth & Env Sci
King's Christian Collegiate, IND

Q15 A Determination of the Toxic Effects of Common Lithium-Ion Battery Components on Dactylis Glomerata

Jack McCay
Senior 11/12 Earth & Env Sci
King's Christian Collegiate, IND

Q16 SURVIVAL WATER FILTER

Zein Shaker, Rand Abdul Jabbar
Junior 7/8 Earth & Env Sci
Tiger Jeet Singh Public School, HDSB

Q17 The Environmental Dangers of Safe Winter Driving

Rianna Crawford, Joshua Clugston
Senior 11/12 Earth & Env Sci
Brantford Collegiate Institute and Vocational School, GEDSB

Q18 H2O What Are You Drinkin?

Jonathan Trikoupis
Junior 7/8 Earth & Env Sci
Ancaster Meadow, HWDSB

Q19 Eco vs artificial dish soap

Malaki Hughes
Junior 7/8 Earth & Env Sci
Ryerson Heights Public School, GEDSB

R01 Is pesticide harmful

Teagan Gray, Michelle Assaad
Junior 7/8 Earth & Env Sci
Alexander's Public School, HDSB

R02 Rivers of Acid

Areeba Qureshi
Intermediate 9/10 Earth & Env Sci
Westmount Secondary School, HWDSB

R03 Worm Power!

Daniela Spoljar, Vanessa Mazurkiewicz
Junior 7/8 Earth & Env Sci
St. Paul, HWCD

R04 Composting Biodegradable and Compostable Materials

Qin Ling Shi
Junior 7/8 Earth & Env Sci
Appleby College, IND

R05 From Droplet to Snowflake

Nishana Khaloo
Junior 7/8 Earth & Env Sci
Dalewood, HWDSB

R06 The Power of Fluoride in Water

Arianne Soriano
Senior 11/12 Earth & Env Sci
King's Christian Collegiate, IND

R07 The Effect of Acid Rain on the Growth of Green Plants

Florence Rodrigue
Junior 7/8 Earth & Env Sci
Appleby College, IND



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PROJECT LISTINGS (Continued)

R08 Natural Filtration Works

Kareena Mistry, Maureen Bisutti
Junior 7/8 Earth & Env Sci
Alexander's Public School, HDSB

R09 Not So Fast!

Michael Chen
Junior 7/8 Earth & Env Sci
Dalewood, HWDSB

R10 Experimenting with Hydropower

Rowan McMichael
Junior 7/8 Earth & Env Sci
Oxford Learning Academy, IND

R11 The Future of Homes

Marko Curgus, Simeon Jeffers
Junior 7/8 Earth & Env Sci
Alexander's Public School, HDSB

R12 Nanosilver: Are You Wearing Toxic Socks?

Olivia Lanc
Junior 7/8 Earth & Env Sci
St. Paul, HWCD

R13 Utilizing the Limestone Cycle to Reduce Net Atmospheric Carbon Dioxide

Kishore Jaiswal, Rishi Popuri
Intermediate 9/10 Earth & Env Sci
Hillfield Strathallan College, IND



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Oakville Christian School**

PROJECT LISTINGS

(Continued)

R14 Say No To Snow

Justin Porco
Junior 7/8 Earth & Env Sci
St. Paul, HWCD

R15 How do different variables affect the growth of a plant?

Mahmoud Ahmed, Fareed Farouq
Junior 7/8 Earth & Env Sci
Escarpment View Public School,
HDSB

R16 Are solar panels the way to the future?

Hailey Israel, Sofia Silva
Junior 7/8 Earth & Env Sci
St. Mary Elementary School, HCDSB

R17 Hurricane VS Sea Temperature

Zoey Powless, Jewellz Hill
Junior 7/8 Earth & Env Sci
Oliver M. Smith Kawennio:io, SNS

R18 Solar Oven

Aaron Dias, Evan Ostafin
Junior 7/8 Earth & Env Sci
Oakville Christian School, IND

R19 Renewable energy sources. How good are they really?

Rebecca Dods
Intermediate 9/10 Earth & Env Sci
Westmount Secondary School,
HWDSB



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(Continued)

S01 Tardigrade Mech: A Biomimetic System for Advanced Radiation Protection in Space

Arielle Ainabe
Senior 11/12 Life Sciences
Garth Webb Secondary School,
HDSB

S02 5 Second Rule: Mythbusters Style

Elaine Benny
Junior 7/8 Life Sciences Non-Human
Oakville Christian School, IND

S03 Aquaponics System

Arjun Dhaliwal, Jaylan Tran
Junior 7/8 Life Sciences Non-Human
Joshua Creek Public School, HDSB

S04 Fantatic Forensics

Heather Sutherland
Junior 7/8 Phys and Math Sci
Burlington Christian Academy, IND

S05 Fight Bac

Clara Jonkman, Natasha Lawford
Junior 7/8 Life Sciences Non-Human
Dalewood, HWDSB

S06 Radiation VS Plants: The effect of Radiation on Plants

Halima Qaisar, Shanze Khurram
Junior 7/8 Life Sciences Non-Human
Escarment View Public School,
HDSB

S07 How Our Eyes See Color

Julia Jamroz
Junior 7/8 Health Sciences Human
St. Mary Elementary School, HCDSB

S08 A Gymnast's Brain

Sydney Black
Junior 7/8 Health Sciences Human
Halton Waldorf School IND

S09 The Eyes are the Windows to your Soul

Stephanie Hua, Alexandra Agyapong
Junior 7/8 Health Sciences Human
Escarment View Public School,
HDSB

S10 Early Diagnosis of Alzheimer's: Classifier Approach using Structural Features from MRI Brain Images

Sadhana Jeyakumar
Intermediate 9/10 Health Sciences
Westdale Secondary School,
HWDSB

S11 Are your thoughts really what you think?

Omar Aboalsoud, Seyon
Karunakgaran
Junior 7/8 Health Sciences Human
Escarment View Public School,
HDSB

S12 Organic vs Conventional - Do you really know what you're eating?

Maya Popowich, Macee Popowich
Junior 7/8 Biotechnology
St. Mark Elementary School , HCDSB

S13 How Direct Reprogramming Can Transform One Type of Cell Straight into Another

Yamini Belmonn
Senior 11/12 Biotechnology
White Oaks Secondary School,
HDSB

S14 How does WiFi spread?

Cindy Zhao, Helen Wei
Junior 7/8 Phys & Math Sci
Maple Grove Public School, HDSB

S15 Tubular UV

Aden Ramanand, Raunaq Vyas
Junior 7/8 Phys & Math Sci
Joshua Creek Public School, HDSB

S16 Stirling Engines

Jacob Shaidle
Junior 7/8 Phys & Math Sci
Appleby College, IND

S17 Electromagnet Force Vs. Voltage

Hayd'n Dawson
Junior 7/8 Phys & Math Sci
St. Paul, HWCD

S18 Correlation of Coronal Mass Ejections with the Solar Sunspot Cycle

Shayan Nadeem, Ayan Delvi
Junior 7/8 Phys & Math Sci
Escarment View Public School,
HDSB

S19 Do the materials used to insulate a solar oven affect the temperature and how fast the food cooks

Charlotte Craig
Junior 7/8 Phys & Math Sci
Appleby College, IND

S20 A Study of Bernoulli's Principle

Navid Amin, Hussain Al-Shammari
Junior 7/8 Phys & Math Sci
Tiger Jeet Singh Public School,
HDSB

S21 K.A.R.B.P.

Keegan Skye
Junior 7/8 Eng & Comp Sci
I. L. Thomas Odadrahonyanita, SNS

S22 The Development of a Probabilistic Algorithm and Robotic Detection System to Simulate Forest Fires

Abdullah Hadi, Jack Ceroni
Senior 11/12 Eng & Comp Sci
Robert Bateman High School, HDSB

S23 Thermoelectrical energy generator

Lara Dawood
Junior 7/8 Eng & Comp Sci
St. Andrew Elementary School ,
HCDSB

S24 Creating a React Native mobile app to cultivate compassion

Md Raiyan bin Sayeed
Intermediate 9/10 Eng & Comp Sci
Westdale Secondary School,
HWDSB

PROJECT LISTINGS

(Continued)

S25 Dr. Plant

Vivian Song, Canshiya Sasitharan
Junior 7/8 Eng & Comp Sci
Alexander's Public School, HDSB

T01 The Cleaning Benefits of Ultrasound and Microbubbles

Erika Schaible
Junior 7/8 Earth & Env Sci
Ancaster Meadow, HWDSB

T02 The Effect of Music on Plants

Joseph Fuchs
Junior 7/8 Earth & Env Sci
Lakewood, GEDSB

T03 Harness The Fun, Harness The Sun

Mujtaba Rizvi
Junior 7/8 Earth & Env Sci
Escarpment View Public School, HDSB

T04 Soil Moisture - Sense It, Don't Guess It!

Ethan Shannon, Devan Tasse
Junior 7/8 Earth & Env Sci
St. Luke, HWCD

T05 Deluxo Brusho

Matteo Comisso, Myles Macpherson
Junior 7/8 Eng & Comp Sci
Alexander's Public School, HDSB

T06 Magnetic Generator

Zuoxi Luo
Intermediate 9/10 Eng & Comp Sci
Hillfield Strathallan College, IND

T07 CANOD: Computer Assisted Navigation and Obstacle Detection

Jeffrey Klinck
Junior 7/8 Eng & Comp Sci
W. H. Morden Public School, HDSB

T08 Use of Technology to Reduce Medical Complications: Development of a Smart Cast

Christopher Lamont
Junior 7/8 Eng & Comp Sci
St. Margaret Mary, HWCD

T09 Wireless Power

Saahil Sheth
Junior 7/8 Eng & Comp Sci
W. H. Morden Public School, HDSB

T10 Recycling Waste Heat

Roshan Dayananda
Junior 7/8 Eng & Comp Sci
Dalewood, HWDSB

T11 Maglevs

Marco Diaz, Rohit Thirumala
Junior 7/8 Eng & Comp Sci
Tiger Jeet Singh Public School, HDSB

T12 The Echo Belt: Navigation Technology for the Visually Impaired

Markus Kunej
Senior 11/12 Eng & Comp Sci
North Park Collegiate and Vocational School, GEDSB

T13 Smart Home Power Saving System

Faiq Ahmed, Veerash Palanichamy
Senior 11/12 Eng & Comp Sci
Glendale, HWDSB

T14 Encryption... And All That Jazz: Text-to-Music-to-Text Encrypted Communication

Claire Le Donne
Junior 7/8 Eng & Comp Sci
Corpus Christi, HWCD

T15 WATS UP: Water Activated Transportation System Uplifting Physics

Monica Mahut
Intermediate 9/10 Eng & Comp Sci
M. M. Robinson High School, HDSB

T16 Project A.H.H.S.D.

Arjun Sarao
Junior 7/8 Eng & Comp Sci
Dalewood, HWDSB

T17 Recovering Waste Energy from a Car Exhaust using a Thermoelectric Generator

Benjamin Waldie
Intermediate 9/10 Eng & Comp Sci
King's Christian Collegiate, IND

T18 Ice and Fan Powered Air Conditioner

Larissa Sonnenberg
Junior 7/8 Eng & Comp Sci
John Knox Christian School (Oakville), IND

T19 Inferno

Evan Popowich
Intermediate 9/10 Eng & Comp Sci
Notre Dame Secondary School, HCDSB

T20 Water from thin air

Pauline Lee, Jessica Liu
Junior 7/8 Eng & Comp Sci
Joshua Creek Public School, HDSB

T21 Performance Optimization of Ice Skating Efficiency (P.O.I.S.E)

James Patterson, Jack Scholes
Intermediate 9/10 Eng & Comp Sci
Hillfield Strathallan College, IND

T22 Fans of Fans?

Spring Fu, Sherry Tang
Intermediate 9/10 Eng & Comp Sci
Hillfield Strathallan College, IND

T23 TWEET: Torsionally Whirling Environmentally Esthetic Turbine

Stefanie Mahut
Junior 7/8 Eng & Comp Sci
Rolling Meadows Public School, HDSB

T24 Life Band...When Timing Means Everything

Andrew Probert
Junior 7/8 Eng & Comp Sci
Maple Grove Public School, HDSB

T25 Exploring the Development of SfM Photogrammetry Pipelines Through the Use of Automation

Ethan Childerhose, Erik Jelezarov
Senior 11/12 Eng & Comp Sci
Iroquois Ridge High School, HDSB

SPECIAL AWARDS – 2018

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



Alectra Utilities Corporation Awards

Prize: Three awards of \$300 each

Criteria: Projects that best demonstrate the production of electrical energy from "green sources" or new, viable approaches to using electrical energy more efficiently.

ArcelorMittal Dofasco Awards

Central Trades & Services Department Award

Prize: \$100

Criteria: Project that best displays the use of scientific principles in applying technology for the betterment of people or machines.

Chemical Testing Award

Prize: \$100

Criteria: Use of chemical testing and/or chemical principles to solve a technical problem.

Commercial Department Award

Prize: \$100

Criteria: Commercial and business planning tools in developing a potentially new or improved commercial product.

Engineering Award

Prize: \$100

Criteria: Engineering & Maintenance Technology principles and design to solve a technical problem.

Environmental 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 & 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.

Ironmaking Award

Prize: \$100

Criteria: Project that best displays the use of metallurgical or material science principles 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.

SPECIAL AWARDS (Continued)

ArcelorMittal Dofasco Awards (continued)

Product Development Business Process Award

Prize: \$100

Criteria: Product Development principles and design in developing a new consumer product with commercial potential.

Market Development and Product 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.

Research and Development Award

Prize: \$100

Criteria: Project that best displays investigative research & scientific principles to explore or solve a technical problem.

Steelmaking Award

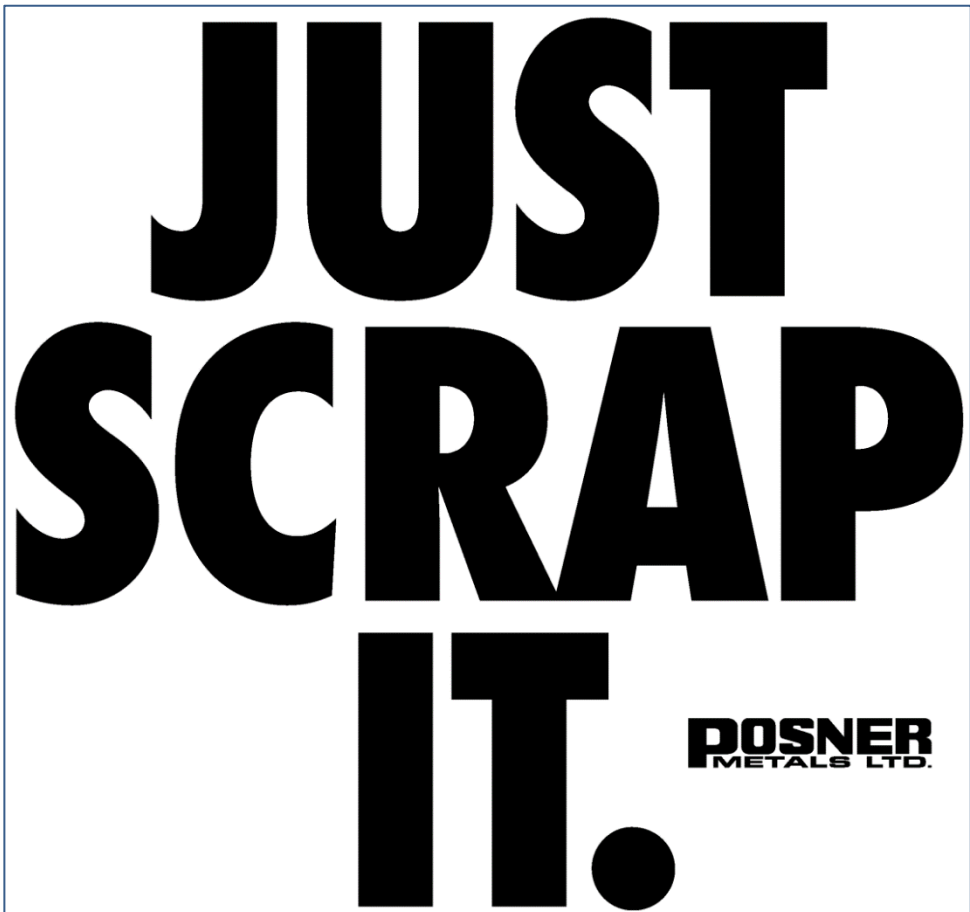
Prize: \$100

Criteria: Engineering and Materials Science principles to solve a technical problem.

Transforming Tomorrow Award

Prize: \$1,000

Criteria: A project displaying rigorous scientific or engineering methods that investigates steelmaking processes or steel products.



SPECIAL AWARDS (Continued)

Artistically Inspired Display Awards

- Prize: Two awards of \$50 each
Criteria: To the most artistically inspired display.

Association for Iron & Steel Technology Northern Chapter Awards

- Prize: Two awards 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.

BASEF 500 Awards

- Prize: Eighteen awards of \$500 each
Criteria: The top 18 projects that win \$250 or less in other prizes. Winners must be first time recipients.

New School Awards

- Prize: Two awards of \$250 each for classroom use
Criteria: Two new schools with the best project scores.

Canadian Institute of Mining, Metallurgy and Petroleum (Hamilton Branch) Awards

- Prize: Two awards of \$100 each
Criteria: Outstanding projects relating to mining, metallurgy and petroleum, any level.

Canadian Nuclear Society (Golden Horseshoe Branch) Awards

- Prize: Two awards of \$125 each for intermediate or senior projects and two awards of \$75 each for junior projects.
Criteria: Projects relating to nuclear science and engineering, energy research, or climate sciences.

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taylorleibow.com



SPECIAL AWARDS (Continued)

Chairman's Award

Prize: \$100

Criteria: A project that exhibits good scientific, engineering or mathematical thought, but did not receive a merit award or any special awards.

Chemical Institute of Canada - Hamilton Section Awards

Prize: Three awards of \$100 each

Criteria: Projects relating to chemistry, chemical engineering, or chemical technology

Conservation Halton Awards

Prize: Two awards of \$100 each

Criteria: Projects that contribute to environmental research, protection, conservation, restoration or awareness by Halton students.

Dillon Consulting Limited

Science and Engineering Award

Prize: \$250

Criteria: Project showing excellence in science and/or engineering.

Biological Sciences Award

Prize: \$250

Criteria: Project showing excellence in biological sciences.

Doris Casey and Gwen Nicolls Disability Solutions Awards

Prize: Two awards of \$100 each

Criteria: Most innovative and creative technical solutions focused on assisting individuals to overcome or compensate for physical or cognitive disabilities

Dr. Laura Blew Social Sciences Awards

Prize: Two awards of \$50 each

Criteria: Best two social science based projects.

Dr. M. Doyle Biology Award

Prize: \$200, a plaque, and a trophy for the winner's school

Criteria: Best biology project.

Electrical Construction Association of Hamilton Awards

Prize: Two awards of \$250 each

Criteria: Projects displaying the best and safest use of electricity in the most creative manner.

Farncombe Family Digestive Health Research Awards

Prize: Two awards of \$250 each

Criteria: Projects that explore digestive health, related diseases or general family nutrition through experimentation or in depth literature.

Gowling WLG Innovation Awards

Grand Winner

Prize: \$300 and a complimentary consultation with a patent or trademark agent at the Gowling WLG Hamilton office.

Criteria: Best project demonstrating potentially patentable subject matter.

Runner Up

Prize: \$200

Criteria: An excellent project demonstrating potentially patentable subject matter.

Hamilton Academy of Dentistry Awards

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

Criteria: Intermediate or senior 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.

SPECIAL AWARDS (Continued)

Hamilton Amateur Astronomers Award

James A Winger Award sponsored by the Hamilton Amateur Astronomers

Prize: \$200

Criteria: Best project in demonstrating an understanding of a topic related to astronomy or physics.

Hamilton Association for the Advancement of Literature, Science & Art da Vinci Award

Prize: \$250

Criteria: Project that best combines personal initiative and creativity with a sound, demonstrated understanding of the scientific method.

Hamilton Chamber of Commerce Innovation Awards

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

Criteria: The most deserving projects by students from Hamilton with potential commercial applications focused on improving our local environment, communities or quality of life.



Hamilton Amateur Astronomers

*Canada's largest
independent astronomy
club*

Meetings second Friday monthly

7:30 pm. Spectator, 44 Frid St.

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Observing, outings & workshops

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info@amateurastronomy.org

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SPECIAL AWARDS (Continued)

Hamilton Wentworth Occasional Teacher Awards

Environment and Education Award

Prize: \$50

Criteria: Junior project that most effectively educates others about an environmental issue.

Healthy Lifestyles Award

Prize: \$50

Criteria: Junior project that most effectively educates others regarding the role of nutrition and/or exercise in maintaining a healthy lifestyle.

Presentation and Aesthetics Award

Prize: \$50

Criteria: Junior project that demonstrates a high level of visual appeal, creativity, and overall quality of presentation.

Hillfield Strathallan College Awards of Excellence

Life Sciences Award

Prize: \$100

Criteria: Junior project that best displays excellence in life sciences.

Physical Sciences Award

Prize: \$100

Criteria: Intermediate project that best demonstrates an understanding of the scientific process in the physical sciences.

Innovation Award

Prize: \$100

Criteria: Senior project that best displays innovation related to environmental sciences or biotechnology.



SPECIAL AWARDS (Continued)

John W. Howard Materials Research Award

Prize: \$100

Criteria: A project demonstrating innovation in engineering materials, especially concrete.

Indigenous Peoples of Canada Scientific Study Awards

Prize: 1st \$140, 2nd \$80, 3rd \$80

Criteria: Projects demonstrating the application of established scientific methods to topics relevant to the culture, heritage or issues of the indigenous peoples of Canada.

IEEE (Institute of Electrical and Electronic Engineers) Hamilton Section Awards

Prize: Two awards of \$100 each

Criteria: Best use of electronics in a science or engineering project.

International Science & Engineering Affiliated Fair Awards

Prize: Certificates

Criteria: Deserving **intermediate or senior** projects related to topics of interest to the following organizations:

American Meteorological Society (2 awards)

Creative scientific endeavour in the areas of atmospheric and related oceanic and hydrologic sciences.

American Psychological Association

Outstanding research in psychological science in the category of behavioural and social sciences or any category related to psychology.

Association for Women Geoscientists

Project done by a female(s) exemplifying a high standard of innovation and scientific excellence in the geosciences.

ASU Walton Sustainability Solutions Initiative (2 awards)

Projects that seek innovative solutions to humanity's most challenging problems. Projects must convey intent to solve a complex problem that involves social justice, environmental and economic prosperity. Recognized students will also be nominated to enter for a Grand Prize \$500 cash award.

Intel Excellence in Computer Science

Additional Award: US\$200

Best project in computer science.

MU Alpha Theta

Most challenging, original, thorough and creative investigation of a problem involving mathematics.

Ricoh USA, Inc.

Outstanding project that addresses issues of environmental responsibility and sustainable development.

Society for In Vitro Biology

Most outstanding Grade 11 project exhibiting in the areas of plant or animal in vitro biology or tissue culture.

Yale Science & Engineering Association

Most outstanding Grade 11 project in computer science, engineering, physics or chemistry.

Laurentian Chapter of SETAC Award

Prize: Two awards of \$100 each

Criteria: For projects on a topic related to environmental toxicology, chemistry, pollution, contamination, remediation or environmental protection.

Dr. Colin J.L. Lock Memorial Chemistry Award

Prize: \$100

Criteria: A project demonstrating the best application of chemistry.

McMaster University Department of Chemistry and Chemical Biology Award

Prize: \$100

Criteria: An outstanding senior or intermediate project connected to chemistry or chemical biology.

SPECIAL AWARDS (Continued)

McMaster University Department of Chemical Engineering & Chemical Engineering Club Award

Prize: \$250

Criteria: An outstanding intermediate or senior project demonstrating aspects of chemical engineering, particularly in the fields of biomaterials, polymer science, process systems design, or water and energy systems.

McMaster University LEAP Award of Innovation

Prize: Free registration to LEAP summer program for one session (July 3-13 or July 16-27 or July 30-August 10, 2018) valued at \$750-\$775.

Criteria: An Intermediate or Senior project of a female participant that demonstrates creativity and originality. Prize must be claimed by April 19, 2018.

McMaster University School of Geography and Earth Sciences Awards

Earth and Environmental Sciences Award

Prize: \$100

Criteria: Outstanding project in earth science or environmental science.

Geography Award

Prize: \$100

Criteria: Outstanding project in geography or social science.

McMaster University Venture Award of Innovation

Prize: Free registration to Engineering & Science Week 1 (July 3-6, 2018) valued at \$255.

Criteria: A Junior project of a female participant that demonstrates creativity and originality. Prize must be claimed by April 19, 2018.

Mechanical Contractors Association of Hamilton Award

Prize: \$250

Criteria: Best engineering project at the intermediate or senior level.



SPECIAL AWARDS (Continued)

Mohawk College Building & Construction Sciences Awards

Civil Engineering Award

Prize: \$50

Criteria: Project related to the field of civil engineering.

Transportation Engineering Award

Prize: \$50

Criteria: Project related to planning, design, or operation of any transportation mode or facility.

Building Sciences Award

Prize: \$50

Criteria: Project related to building sciences, building materials, or energy conservation in structures.

Mohawk College Computer Science & Information Technology Excellence Awards

Prize: Three awards of \$50 each

Criteria: Projects that demonstrate a thorough understanding of computer application and design in today's world.

Mohawk College Electrical Engineering Technology Awards

Electrical Engineering Award

Prize: \$50

Criteria: A deserving project in electrical engineering studies.

Energy Systems Award

Prize: \$50

Criteria: A deserving project in energy systems.

Computer Engineering Technology Award

Prize: \$50

Criteria: A deserving project in computer engineering technology.



Achieving Believing Belonging

Diane Rabenda
Chair of the Board

Paula Dawson
Director of Education

Serving the Catholic Communities
of Burlington, Halton Hills,
Milton and Oakville

Congratulations

To all BASEF 2018 participants

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*

SPECIAL AWARDS (Continued)

Mohawk College Mathematics Awards

- Prize: Two awards of \$50 each, one at the Junior and one at the Senior level.
Criteria: Deserving projects in the category of mathematics or statistics.

Nelson Steel Awards

- Prize: Two awards of \$100 each
Criteria: Outstanding projects at the junior level related to two of the following fields: steel, environmental or chemistry.

New Health Scientist Award

- Prize: \$50
Criteria: A worthy project at the Junior level showing good potential for improving the health of our community.

Nikola Tesla Innovation Awards

- Prize: Gold \$250, Silver \$150, Bronze \$100
Criteria: Projects that best display the most innovative application of the body of knowledge associated with Nikola Tesla's work, and/or acknowledgement in the display of Nikola Tesla's contribution by way of his work and inventions.

Nikola Tesla Honourable Mention Awards

- Prize: Twenty awards of \$50 each
Criteria: Projects with electricity as a key element.

Oakvillegreen Conservation Association Award for the Environment

- Prize: \$100
Criteria: A project that best promotes understanding and stewardship of the environment.

Primary Fluid Systems Awards

- Prize: Twenty awards of \$100 each
Criteria: Outstanding projects in earth and environmental, engineering or physical sciences, any level.

Procor Engineering Awards

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

Professional Engineers of Ontario - Hamilton/Burlington Chapter Awards

- Prize: 1st \$250, 2nd \$150, 3rd \$100
Criteria: Deserving, exceptional, outstanding projects in engineering at any level.

National Engineering Month Prize for Exceptional Engineering Innovation

- Prize: \$500
Criteria: Project that best exemplifies innovation in engineering applied to scientific discovery.

Professional Engineers of Ontario - Oakville Chapter Awards

- Prize: 3 awards of \$100 each
Criteria: Deserving engineering projects – one at each level



GOAL:

EDUCATE ➡ **INSPIRE** ➡ **INNOVATE**

Accomplished via: Presentation, Awards & \$10,000 Scholarship

Nikola Tesla Educational Corp (NTEC) is proud, for the 4th year to be a sponsor for BASEF, where we **recognize** our youth who will **INNOVATE** for the future.



Nikola Tesla, with his 315 patents changed society for ever. His inventions defined the second industrial revolution. More importantly, Nikola Tesla personally approved the Five Johns' plans for the DeCew Power Generation Station that has been delivering power to Hamilton since **1898**. The plans for the plant were based on Tesla's AC system of generators and transformers.

This is the **120th Anniversary** of the arrival of power to Hamilton. Join NTEC, the City of Hamilton, and Ontario Power Generation for the celebrations. Check NTEC website & Facebook for further details. Save the dates, October 7th & 13th, 2018. Visit DeCew PGS.

**Student, parents/guardians,
educators, & community members,
this is your opportunity to have a say.**



wants to hear from the community about selecting a name for the

New North Secondary School. ➡



To voice your support for Nikola Tesla Secondary School:

- **Sign petition** <https://goo.gl/SbQZkf>
- **Take HWDSB survey** <https://goo.gl/NQBJSz>
- **Write a letter of support and provide your reasons for supporting the name. (email to info@teslaeducational.ca)**
- **Contact your school board trustee.**

www.teslaeducational.ca

www.facebook.com/teslaeducational

contact: info@teslaeducational.ca

SPECIAL AWARDS (Continued)

The Research Institute at St. Joe's Hamilton, Health Research Award

- Prize: One \$100 award at the intermediate level, and one \$50 award at the junior level
Criteria: Outstanding projects that use strong scientific principles in exploring or solving a problem related to human health issues and communicates the results of their project through an effective visual display.

Rotary Club of Hamilton-East Wentworth Awards

- Prize: 1st \$250, 2nd \$150, 3rd \$100
Criteria: Best three projects from schools situated in the Hamilton core displaying high academic achievement and striving to excel in science and technology.

Royal Botanical Gardens Award

- Prize: \$100 gift certificate from the RBG shop plus a 1 year RBG family membership
Criteria: Best project in plant or environmental sciences.

Dr. Nicola Simmons Award in Cognition Studies

- Prize: \$100
Criteria: An exemplary project in cognition studies.

Society of Tribologists & Lubrication Engineers – Hamilton Chapter

- Prize: Two awards of \$250 each
Criteria: Projects that utilize the principles of tribology, (friction, wear and lubrication), to solve a technical problem

SPIE - The International Society for Optics & Photonics Awards

- Prize: 1st US\$250, 2nd: US\$150, 3rd US\$100; to be requested by winners after the fair
Criteria: Best projects in optics or photonics where students apply optics or photonics technology, techniques or principles to his/her project.

Talkit.ca Computer Engineering Awards

- Prize: 1st \$100, 2nd \$50
Criteria: For outstanding projects using computer electronics or software that do not win a trip award.



stle
**Society of Tribologists
and Lubrication Engineers**
Hamilton Section

**To all Participants and
Award Winners
of BASEF 2018**

Well done!

What is tribology?

Tribology is the study of science and engineering of interacting surfaces in relative motion. It includes the study and application of the principles of friction, lubrication and wear. Tribology is a branch of mechanical engineering and materials science.

SCHOLARSHIPS & INTERNSHIPS

SCHOLARSHIPS

McMaster University Faculty of Engineering Entrance Awards

- Prize: Five \$1,000 tuition awards, to be redeemed upon acceptance of admission to the Faculty of Engineering. (Pair projects will split the award).
- Criteria: Projects demonstrating excellence in Science, Technology, Engineering or Math.

McMaster University Women in Engineering Entrance Awards

- Prize: Two \$1,000 tuition awards, to be redeemed upon acceptance of admission to the Faculty of Engineering. (Pair projects will split the award).
- Criteria: Projects led by female students that demonstrate excellence in Science, Technology, Engineering or Math.

University of Ottawa Entrance Scholarship

- Prize: One \$1,000 entrance scholarship applied to tuition fees upon being accepted into and registered in an undergraduate program in the Faculties of Engineering or Science at the University of Ottawa.
(In the case of a pair project, each student will receive a \$500 admission scholarship if they register in appropriate undergraduate programs at the University of Ottawa).
- Criteria: The most deserving Senior project.

Hillfield Strathallan College Entrance Scholarship Award

- Prize: One \$5,000 entrance scholarship toward tuition fees, to be redeemed upon acceptance as a full time senior school student entering Hillfield Strathallan College in any of grades 9 to 11 for the 2018-19 academic year. (Will be awarded to both students in a pair project – maximum \$10,000 value).
- Criteria: The best project demonstrating excellence in scientific learning with joy and purpose.

Mohawk College and Sheridan College – Award of Excellence Tuition Scholarships

- Prize: Mohawk College and Sheridan College will provide a \$1,000 entrance award. 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.
- Criteria: All students earning BASEF 2018 Merit Award Medals (Gold, Silver, Bronze) will win this scholarship.

INTERNSHIPS

Michael G. DeGroote Institute for Infectious Disease Research Internship Award

- Prize: A 6-week paid summer internship as a research assistant in a laboratory at the Michael G. DeGroote IIDR at McMaster University, valued at \$2,000. Two runner-ups will be identified and given a certificate.
- Criteria: Best senior student project in infectious disease, drug discovery or human health



Discover McMaster

Founded in 1887, McMaster University is one of only four Canadian universities consistently ranked in the Top 100 in the world.

A medical-doctoral, research-intensive university, McMaster is dedicated to teaching, learning and service. In the 1960s, we pioneered the problem-based approach to learning that came to be known around the world as "the McMaster model".

Home to more than 70 research centres and institutes, McMaster is comprised of six faculties: The DeGroote School of Business, and the Faculties of Engineering, Health Sciences, Humanities, Science, and Social Sciences.

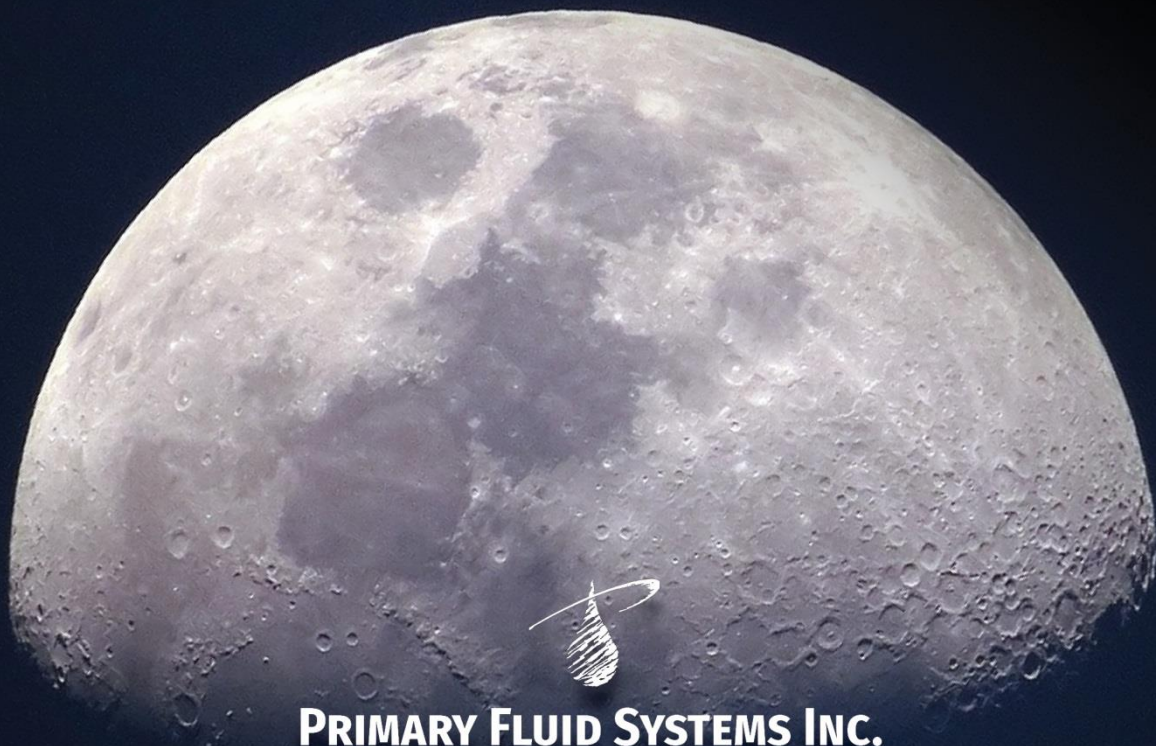
With a total full-time student population of close to 28,000, McMaster welcomes students from 98 countries as well as Canada.

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*“Somewhere,
something incredible
is waiting to be known”*

Carl Sagan



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MERIT AWARDS

Sponsored by Primary Fluid Systems Inc.



Merit Awards recognize the tremendous amount of thought and effort that has gone into the projects entered in the Bay Area Science and Engineering Fair. They are the result of an extensive judging process undertaken by over 175 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 and 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%	earns Gold medal & cash award
over 80%	earns Silver medal & cash award
over 75%	earns Bronze medal & cash award





Thanks to our sponsors we're going places!
**2017 National & International
Science Fair Competitors**



**BASEF 2017
International Team**



**BASEF 2017
National Team**

**The BASEF Students and Volunteers gratefully
acknowledge the support of all of our sponsors**



Emma Mogus, 2017 Best in Fair Winner
receives trophy from Leo DeMEO of ArcelorMittal Dofasco.
Co-Chairs Dan Bowman and Ingrid Munson applaud.

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.

Best-in-Fair \$1,000



2nd Best-in-Fair \$800



3rd Best-in-Fair \$500



DRS. RANJAN SUR AND MONALISA SUR AWARD

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



ROY MIDDLETON MEMORIAL AWARD

Best Junior project at the fair, a plaque to the winner's school.



HERB GILDEA MEMORIAL TROPHY

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

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



Advancement to the 2018 Intel International Science & Engineering Fair, to be held in Pittsburgh, Pennsylvania from May 13 to 18, 2018. All trip expenses paid.

Up to 5 projects (depending on funding level) 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.

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CANADA WIDE SCIENCE FAIR TRIP AWARDS

Advancement to the 2018 Canada Wide Science Fair (all trip expenses paid), to be held in Ottawa, Ontario from May 12 to May 19, 2018.



Ottawa 2018

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

All projects entered in BASEF 2018 are eligible.

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