

**BASEF**

**2017**

Annual Report

Bay Area Science and Engineering Fair

Sponsored by ArcelorMittal Dofasco



**ArcelorMittal**  
DOFASGO | HAMILTON

Big ideas ...  
Infinite possibilities

The Orion nebula is actually made up of 3 nebulae. Bottom right is the Running Man (NGC 1977), M42 in the centre and M43 upper left. This is the tip of the sword that hangs from Orion's belt. Photo by Janice Mannering, a member of the Hamilton Amateur Astronomers.

## About BASEF

**The Bay Area Science and Engineering Fair (BASEF)** volunteer Organizing Committee planned and staged the **57<sup>th</sup> Annual Regional Fair**, March 30-April 4, 2017 at Mohawk College in Hamilton. Over 500 students participated in the fair. We thank Mohawk College for their excellent support of the fair.

BASEF is the regional fair for the City of Hamilton, Region of Halton, Six Nations, and the counties of Brant, Haldimand and Norfolk. BASEF is open to over 100,000 students from grades 7 to 12 attending public, separate, independent, private and home schools. BASEF is a registered charity\*.

### Our Mission

To promote project-based science and encourage youth to conduct research in areas of science, technology, engineering, and mathematics (STEM), utilizing the scientific method or engineering design process. We believe all students should be given the opportunity to participate in science fairs. Students learn invaluable academic and life skills through researching, experimenting, displaying and presenting their projects. The judging process and public viewing components allow students to practice their people and communication skills and gain self-confidence and a sense of accomplishment for a job well done.

### Our Goals

Our goal at BASEF is to make science fair participation a rewarding and enjoyable experience. Students may not win big in their first or even second science fair competition, however they gain the tremendous opportunity to meet other students interested in science and engineering, and get the opportunity to share their passion with their judges and the public.

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\* Registered Charity BN 11895 1565 RR0001

## What's new?

A new student internship was awarded. EcoSynthetix, sponsored a 10 week paid summer internship at the EcoSynthetix Centre for Innovation in Burlington, valued at \$5,000.

We produced two new booklets for students about protecting their **Intellectual Property and Patent Information**. We collaborated with Alex Ross of Gowling WLG, a long time special award donor, to help write and edit these booklets. All students were given them in their goody bags at the fair. Thanks to committee members Wayne Bowdish, Jim Casey and Roslynn Crawford for coordinating this idea.

BASEF's **Bursary Program** helps students in need of financial assistance to complete a science fair project. Based on teacher recommendations, 16 student projects in BASEF's catchment area were given \$25.00 and a project backboard, plus a coupon to use the Hamilton Public Library's Makerspace. One of these students won a Bronze Excellence Award!

Our **Technology Seed Initiative** provides a starter kit of materials and resources to qualifying students so they can begin experimenting with electronics-related projects. This free kit was given to 4 students this year.



ArcelorMittal Dofasco Pinnacle Best in Fair winner, Sabrina Mogus, grade 7, at Emily Carr Public School, Oakville (HDSB) presented by Leo De Meo of ArcelorMittal Dofasco

## Fair Highlights

Over \$200,000 in cash, prizes, trips, scholarships and participation awards.

**223 students received Merit Awards**



sponsored by Primary Fluid Systems, amounting to over \$12,000. All Merit Award winners received merit scholarships provided by Mohawk College and Sheridan College (total value \$111,500).



Over 210 special awards totaling \$26,400 in cash awards, \$9,500 in scholarships and 2 internships valued at \$7,000 in total were presented to deserving students. In addition 3 new schools won cash prizes of \$250. Special awards are given to projects of specific interest to the 50 donors.

### CHAMPION TEACHER

Lisa Brown, a grade 7 and 8 teacher at St. Joseph CES, Hamilton (HWCDSEB), won the Champion Teacher Award. Her students brought 7 projects to BASEF. Ms. Brown commented that the students teach her far more than she teaches them when preparing their projects.



Gold, Silver and Bronze medals at BASEF!

## Volunteering at BASEF



CWSF volunteer chaperones

Without our dedicated volunteers, BASEF would not happen! BASEF is one of Canada's premier regional Science and Engineering Fairs and is always looking for committed and interested volunteers. BASEF is very thankful for everyone who helps to organize and carry out the fair every year.

Volunteering at BASEF is quite varied and includes judges, mentors, fundraisers, planners, marketers, etc.

Send us an email to sign up here:  
[volunteers@basef.ca](mailto:volunteers@basef.ca)

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

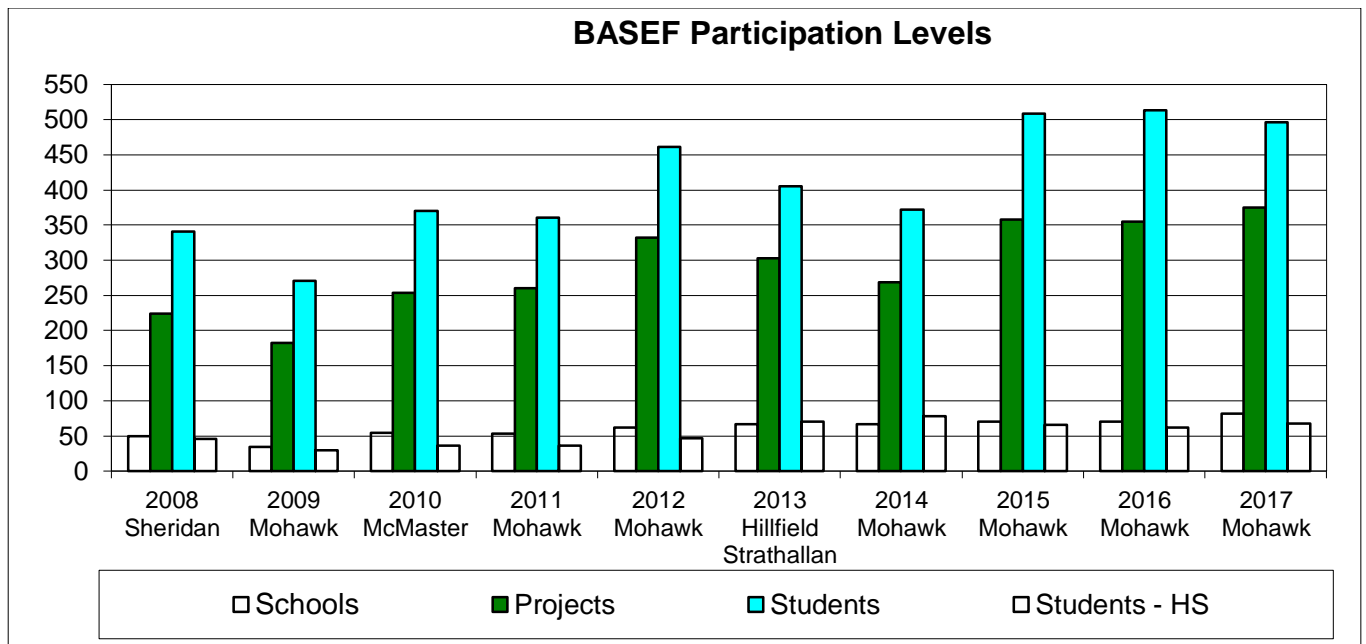
[www.basef.ca](http://www.basef.ca)



## Activity Morning at BASEF

BASEF Activity Morning reaches out to both BASEF participants and local Grade 7-8 students in a morning speaker session designed to promote STEM engagement. Attendance at this captivating show was approximately 550 BASEF students and an additional 450 students from seven schools within the BASEF catchment area. Presenters included:

- Erica Dao (McMaster Neudose) discussed "Human Space Flight: The Good, The Bad, and the ...Deadly?"
- Dr. Colin Campbell and Vic Djurdjevic (Nikola Tesla Educational Corporation) provided a captivating presentation on how Nikola Tesla and his work with electricity generation and use impacted the development of the City of Hamilton.
- Raf Hirmiz (McMaster Engineering) showed the students the potential of harvesting energy using common pizza ovens in the community.
- John Gauvreau (Hamilton Amateur Astronomers) inspired the students to put their STEM goals on a more astronomical scale. His talk around Planet 9 challenged the students to follow a career path of discovery and change through the life and times of dwarf planet Pluto and the STEM activities of New Horizons.
- Randy Dumont, Paul Harrison, and Lydia Chen (McMaster University Chemistry Show) demonstrated the potential of chemistry through an orchestrated series of live demonstrations.



CWSF winners having some fun in Regina



Connor McCourt presenting his project at CWSF

## National and International Fair Winners

### Canada Wide Science Fair



Sixteen students attended the CWSF held in Regina, SK from May 14-21, 2017. Chaperones from the BASEF Organizing Committee were Dan Bowman (Lead delegate), Dana Bee, Ingrid Munson and George Geczy, who mentored, coached and chaperoned the students.



### National Competition Results at the Canada Wide Science Fair (CWSF)

<b>Joseph Saturnino</b> , St. Margaret Mary, Hamilton HWCDSB (grade 8)	Project: <i>'MSRS - Wearable Technology and IoT'</i> <b>Gold Excellence Award</b>
<b>Paul Drakos</b> , Hillfield Strathallan College, Hamilton Independent School (grade 9)	Project: <i>'The 'Helical Water Coil': A Residential and Commercial Thermoelectric Generator'</i> <b>Silver Excellence Award</b>
<b>Anika Gupta</b> , Westdale Secondary School, Hamilton HWDSB (grade 9)	Project: <i>'A Novel Approach to Protect Dopamine Neurons Using a Peptide and Trophic Factor'</i> <b>Silver Excellence Award</b>
<b>Krish Joshi</b> , St. Thomas the Apostle, Waterdown HWCDSB (grade 8)	Project: <i>'Developing a Dermal Colorimetric Test Patch to Identify Iron Loss in Sweat'</i> <b>Silver Excellence Award</b>
<b>Sabrina Mogus</b> , Emily Carr Public School, Oakville HDSB (Grade 7)	Project: <i>'Don't FEAST on Your FLEECE'</i> <b>Silver Excellence Award</b> <b>Special Award 4-H Canada Food Security</b>
<b>Caroline Mahut</b> , M. M. Robinson High School, Burlington HDSB (grade 12)	Project: <i>'Catch the Wave: Harnessing Electricity from Sinusoidal Oscillations'</i> <b>Silver Excellence Award</b> <b>Special Award for Renewable Energy</b>
<b>Benjamin Waldie</b> , King's Christian College, Oakville Independent School (grade 9)	Project: <i>'Capturing Waste Energy from a Home Furnace using a Thermoelectric Generator'</i> <b>Silver Excellence Award</b>
<b>Olivia Calbeck</b> , Hillfield Strathallan College, Hamilton Independent School (grade 8)	Project: <i>'One Step at a Time'</i> <b>Bronze Excellence Award</b>
<b>Neha Gupta</b> , Sir William Osler, Dundas HWDSB (grade 7)	Project: <i>'Development of a Portable System for Detection of Bacteria Using DNA Biomarkers'</i> <b>Bronze Excellence Award</b>
<b>Edward Lombo</b> , St. Andrew Elementary School, Oakville HCDSB (grade 8)	Project: <i>'Electrochemical Synthesis of Ammonia'</i> <b>Bronze Excellence Award</b>
<b>Monica Mahut</b> , M. M. Robinson High School, Burlington HDSB (grade 9)	Project: <i>'GEARS: Gravitational Electricity Accumulating Renewable Storage'</i> <b>Bronze Excellence Award</b> <b>Special Award for Renewable Energy</b>
<b>Dylex Suan</b> , Corpus Christi Secondary School, Burlington HCDSB (grade 9)	Project: <i>'Ameliorating Salinity Tolerance in Broccoli Plants by Acclimation'</i> <b>Bronze Excellence Award</b>
<b>Julie Taylor</b> , Hillfield Strathallan College, Hamilton Independent School (grade 8)	Project: <i>'One Step at a Time'</i> <b>Bronze Excellence Award</b>
<b>Connor McCourt</b> , Oakville Christian School, Oakville Independent School (grade 7)	Project: <i>'Grow With The Flow'</i> <b>Special Award 4-H Canada Food Security</b>

## Intel International Science and Engineering Fair



The winning student participants (left to right) are: Andres Lombo (St. Thomas Aquinas Secondary School, Oakville, HCDSB), Arielle Ainabe and Jack Mogus (both from Garth Webb Secondary School, Oakville, HDSB), Margaret Williams (Ancaster High School, Ancaster, HWDSB) and Camila Moran-Hidalgo (Westdale Secondary School, Hamilton HWDSB).

Five outstanding high school projects won all-expense paid trips to the Intel International Science & Engineering Fair (IISEF) in Los Angeles, California from May 13 to 18, 2017. Chaperones Cathy Hayman (lead) and Ming Chong from the BASEF Organizing Committee, mentored and escorted the students.

### Final Results at Intel International Science and Engineering Fair

<p><b>Camila Moran-Hidalgo</b></p>	<p><i>Project: 'Membrane-based Nanostructured Biosensor to Detect Pathogens'</i>  <b>2nd place in Biomedical Engineering,</b>  <b>US\$1,500 and an asteroid named after her and</b>  <b>China Association for Science and Technology (US\$1,200)</b></p>
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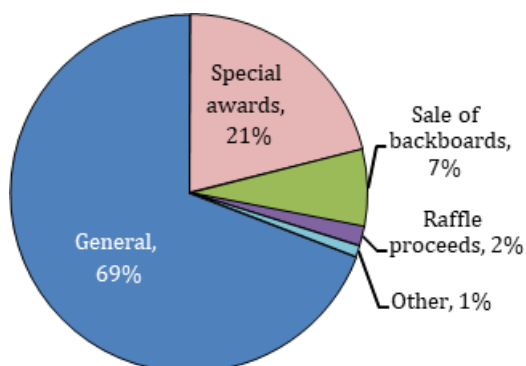


**Please join us next year for the 58<sup>th</sup> annual BASEF - March 21 – 27, 2018 at Mohawk College**

## Financial Highlights – Statement of Operations

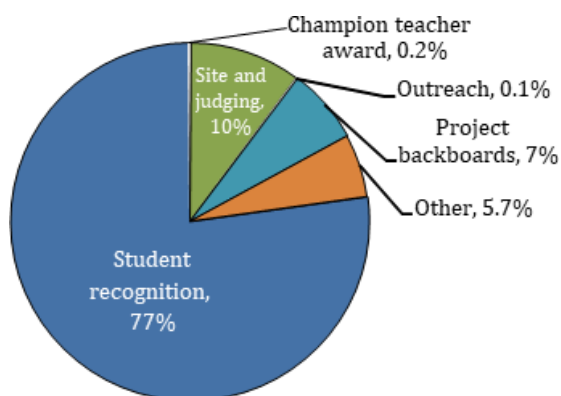
For the year ended August 31, 2017 (unaudited)

Revenue	2017	2016
General	\$ 98,365	\$ 102,880
Special awards	29,850	27,150
Sale of backboards	9,912	2,049
Raffle proceeds	2,510	3,160
Other	2,144	1,662
	<u>\$ 142,781</u>	<u>\$ 136,901</u>



### Summary of Expenses

Student recognition	\$ 105,123	\$ 99,214
Champion teacher award	343	292
Site and judging	13,687	11,058
Outreach	200	250
Project backboards	9,281	1,935
Other	7,802	7,897
	<u>\$ 136,436</u>	<u>\$ 120,646</u>
Excess of Revenue Over Expenses	<u>\$ 6,345</u>	<u>\$ 16,255</u>



### Disbursements to Students

Bursaries	\$ 455
CWSF trips	37,640
Special awards	29,649
IISEF trips	17,621
Merit awards	12,535
Participation awards	4,031
Prize expenses	2,018
Photography	981
Technology seed project	193
	<u>\$ 105,123</u>

### Other Expenses

Ceremony & sponsor recognition	\$ 2,170
Administrative	2,907
Bank charges	954
Volunteers	956
Registration	533
Fundraising	50
Marketing & publicity	106
Raffle expenses	126
	<u>\$ 7,802</u>

## Sponsorship

Title Sponsor (\$15,000+)				
 <b>ArcelorMittal</b> DOFASCO   HAMILTON				
Diamond (\$10,000+)		Platinum (\$5,000+)		Gold (\$2,500+)
  		  		 Lifetouch Masters Insurance McMaster Innovation Park Taylor Leibow Accountants Union Gas Limited
Silver (\$1,000+)		Bronze (\$500+)		
Canadian Linen & Uniform Service City of Hamilton Economic Development Department Halton Catholic District School Board Halton District School Board Hamilton Chamber of Commerce Hamilton-Wentworth Catholic District School Board Hamilton-Wentworth District School Board Hillfield Strathallan College John Deere Canada ULC King- KPM Industries Ontario Power Generation – Nanticoke Posner Metals Society of Tribologists & Lubrication Engineers – Hamilton Section Taylor Chrysler Dodge TD Friends of the Environment Foundation Triple M Metal		A.T. McLaren BattleGoat Studios D.E.N.M. Engineering Ltd Etratech Hamilton Amateur Astronomers Hamilton Community Awareness & Emergency Response		Judy Marsales Real Estate Lanhack Consultants Rotary Club of Hamilton AM Rotary Club of Waterdown Stryker Canada Sun-Canadian Pipe Line Limited Viziya
		Friends (\$100+)		
		Complete Rent-Alls Conservation Halton Electrical Construction Association of Hamilton Hamilton Wentworth Occasional Teachers		NewAE Technology Optimist Club of Stoney Creek Staples TACC Construction Talkit.ca Tegs Tools TPI Reg
Benefactors				
Banting & Best Level (\$1000+)	Bondar Level (\$500+)*	Polanyi Level (\$200+)		McGill Level (\$50+)
Mike & Sue McNally	Jean-Louis Brenninkmeijer Steve & Cathy Hayman Peter & Susan Olynyk	Helen Barton Dan & Debbie Bowman Grant Buchan-Terrell Tom & Roslyne Crawford Renato & Enza DeTina John & Eleanor O'Flynn Dr. Nicola Simmons		Jim Casey Jo-Anne Connery Linda Hazelden Elizabeth McCready Linda Millar Wayne Schaefer Christine Yeung Norman Young
* In addition to the donors listed, BASEF also has donors who wish to remain anonymous.				

Note: Sponsors donating in-kind services help us provide an exceptional experience for BASEF participants. Key in-kind donations included: Printing, posters, newspaper advertising, trip winners' jackets, photo ID tags, accounting, and web hosting.