

2020 PROGRAM BOOK

70th Annual Chicago Public Schools Student Science Fair, Inc.

STANDING ON THE SHOULDERS OF



2020 EXHIBITION OF STUDENT STEM RESEARCH

Illinois Institute of Technology

March 19 - 22, 2020

Symposium Presentations

March 19, 2020



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HONORED TO SUPPORT THE 2020 CHICAGO
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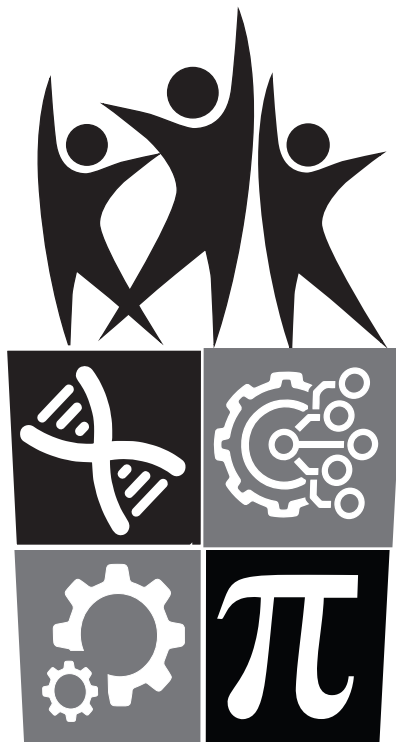


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2020 STEM Exhibition Program Book



STANDING ON THE SHOULDERS OF STEM

70th Annual Chicago Public Schools Student Science Fair, Inc

Brought to you by:

Chicago Public Schools Student Science Fair, Inc.

Academic and Exhibition Site Supporters:

Chicago Public Schools - Office of Teaching and Learning

Site Host:

Illinois Institute of Technology

City of Chicago

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Schedule of Events

Thursday, March 19, 2020 – Symposium – details on page 24

9:00 A.M. – 11:30 A.M.	Symposium Morning Sessions (Rooms HH 002, HH 003 & HH 010)
11:30 A.M. – 12:45 P.M.	Symposium Luncheon (Hermann Hall Expo) - by invitation only
1:00 P.M. – 3:30 P.M.	Symposium Afternoon Sessions (Rooms HH 002, HH 003, & HH 010)

Friday, March 20, 2020 – Exhibit Judging – details on page 26

7:15 A.M. – 8:00 A.M.	Judges Breakfast (Hermann Hall Expo)
8:00 A.M. – 8:30	Judges Briefing (Hermann Hall Auditorium)
8:30 A.M. – 1:00 P.M.	Judging of Exhibits (Hermann Hall, Ballroom, Alumni Lounge & Gallery Lounge)
10:30 A.M. – 11:15 A.M	Opening Ceremony/Ribbon Cutting (Hermann Hall Expo)
11:15 A.M. – 1:00 P.M.	Judging Continues
11:30 A.M. – 1:00 P.M.	Judges Buffet Luncheon (Hermann Hall Expo)
12:00 NOON – 1:15 P.M.	Recognition Luncheon (McCormick Ballroom) – by invitation only
1:00 P.M. – 3:00 P.M.	STEM Exhibition Open to Public (Hermann Hall)

Saturday, March 21, 2020– Public Viewing and Additional Events – details on page 39

9:30 A.M. – 3:15 P.M.	City Student STEM Exhibition Open to the Public (Hermann Hall)
9:30 A.M. – 1:00 P.M.	International Science and Engineering Fair Judging (Hermann Hall Room HH 005)
11:45 A.M. – 1:00 P.M.	Sixth-Grade Regional Exhibition Winners Luncheon (Hermann Hall Expo)
2:00 P.M. – 3:00 P.M.	ComEd Science Club Social (Hermann Hall Expo) – by ticket only

Sunday, March 22, 2020 –Awards Convocation – details page 41

1:00 p.m. – 3:00 P.M.	Awards Convocation (Hermann Hall - Auditorium) – by ticket only
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Proclamation from the Mayor of the City of Chicago

WELCOME



OFFICE OF THE MAYOR CITY OF CHICAGO

LORI E. LIGHTFOOT
MAYOR

PROCLAMATION

WHEREAS, from March 19 through March 22, 2020, the Chicago Public Schools Student Science Fair, Inc., will sponsor for Chicago Public Schools' students, the 70th Annual Citywide Chicago Public Schools Exhibition of Student STEM Research which will be held at the Illinois Institute of Technology; and

WHEREAS, the 2020 Exhibition of Student STEM Research follows the theme, Standing on the Shoulders of Science, Technology, Engineering and Mathematics; and

WHEREAS, approximately 225 students from a total of 5,000 participants at the local school and network levels will be selected to exhibit their projects and symposium papers at the Illinois Institute of Technology; and

WHEREAS, 70 of those students will be sent to the Illinois Junior Academy State Science Fair at Millikin University in Decatur, Illinois and four students will be sent to the International Science and Engineering Fair in Anaheim, California; and

WHEREAS, students will compete in sixteen categories, including aerospace science, behavioral science, biochemistry, botany, chemistry, computer science, earth science, electronics, engineering science, environmental science, health science, materials science, mathematics, microbiology, physics, and zoology;

NOW, THEREFORE, I, LORI E. LIGHTFOOT, MAYOR OF THE CITY OF CHICAGO, do hereby proclaim March 19-22, 2020 to be CHICAGO PUBLIC SCHOOLS STUDENT STEM EXHIBITION DAYS IN CHICAGO, in recognition of the exceptional talents displayed by these students and in appreciation of the corporate sponsors, teacher sponsors, and parents who have provided support and encouragement for these young scientists.

Dated this 19th day of March, 2020.

Lori E. Lightfoot
Mayor



2019 Opening Ceremony

On Friday, March 22nd, the 69th Annual Chicago Public Schools Student Science Fair opened with corporate and CPS sponsors' greetings, accolades and words of encouragement for the student scientists at this year's fair.



Chairperson Jeanette Bartley along with Corporate Sponsors and guest cut the opening ribbon. JROTC Cadets stretch out the ceremonial ribbon for the official cutting and opening of the STEM Exhibition.



CPS Chief Officer Anna Alvarado greets everyone present and thanks the sponsors for their continued support of STEM education.



JROTC cadets from Phoenix Military Academy getting ready to post Colors. .



Illinois Tech Provost Peter Kilpatrick welcomes everyone to Illinois Tech's campus for the 69th Annual STEM Exhibition.



Elizabeth Copper and Ken Zdunik taking pictures of the opening ceremonies as remembrance.



About the Chicago Public Schools Exhibition of Student STEM Research

About the Exhibition

We are proud to present the 69th Annual Chicago Public Schools (CPS) Exhibition of Student STEM Research. The exhibition originated in 1950 as a vehicle to encourage and motivate young high school science students. Since then, a volunteer army of teachers and administrators has sustained this exemplary program. The objectives of the CPS Student STEM Exhibition are to:

- provide opportunities and support for students to conduct authentic research
- expose students to diverse STEM learning communities
- obtain scholarships for selected Chicago Public Schools graduating seniors
- maintain perpetual interest in fostering scientific and design research, invention, and technological development
- promote scientific/design interests and hobbies of students
- conduct an annual student STEM exhibition, symposium and essay contest

School, Regional and City Student STEM Exhibitions

More than 8,000 students enter projects, beginning at the local school level. Local school winners exhibit at the regional level. Approximately 225 winners from 8 Regional Networks STEM Exhibitions are exhibiting at this three-day citywide exhibition. The CPS Exhibition of Student STEM Research is always held in the spring.

Student STEM Symposium and IJAS Essay Contest

Additional components of the exhibition are the CPS Student STEM Symposium and IJAS Essay Contests. High school students participate in the symposium competition, presenting their research to a panel of judges. High school students and 7th- and 8th-graders participate in the essay contests, writing about a given contemporary issue in science.

State and International Exhibitions

Each year, approximately 45 students are selected to participate at the Illinois Junior Academy of Science (IJAS) State Fair, and 15 research paper presentations are delivered at the IJAS. This event is scheduled May

1 and May 2, 2020, at Millikin University in Decatur, Illinois. In addition, the four top-scoring students from the CPS Exhibition of Student STEM Research will participate at the International Science and Engineering Fair (ISEF), which will be held in Anaheim, California on May 10 - 15, 2020.

Sponsors

Primarily, the CPS Student Science Fair, Inc. has three sponsoring organizations. The Chicago Public Schools, Office of Teaching and Learning oversee the planning for the local school and regional STEM exhibitions. The CPS Office of Teaching and Learning is the host department for CPSSSF, employing the Regional STEM Exhibition Coordinator, CPS/SSF Liaison and contributing operational funds to run the exhibition each year. This year we welcome and give thanks to Illinois Tech (Illinois Tech) our new site host of the citywide Student STEM Exhibition. Chicago-area corporations spearhead the drive within the Chicago business community to obtain the necessary financial support for a successful Student STEM Exhibition experience. The Motorola Solutions Foundation, ComEd, An Exelon Company, BP America, Inc., Peoples Gas and Illinois Tech are this year's corporate sponsors.

How You Can Help

To help the CPS Student STEM Exhibition and encourage young high school students to consider careers in the STEM fields, monetary contributions must be solicited. Without this financial support, the school and regional exhibition support, the production of the high quality event of the City Exhibition of Student STEM Research, and the participation in the state and international science fairs would be greatly limited.

Please consider being a contributor to the operating fund or scholarship fund, or providing special awards and tours prizes. Please send a letter of interest to contribute to CPS Student Science Fair, Inc., P.O. Box 803945, Chicago, IL 60680-3945, or visit website at cpsstemfair.org.



In Memoriam NANCY TOOMEY (1933-2019)

The Chicago Public Schools Student Science Fair, Inc. (CPSSSF) organization, its Committee Chairpersons and its partners are diminished whenever we lose one of our faithful friends and colleagues. Nancy Toomey was a long-time supporter of our STEM Exhibitions. Her support as a teacher sponsor, Arrangement Committee volunteer and Chairperson of the Scientific Review Committee from 1986 to 2015 brought her to the City Annual STEM Exhibition each year. She enjoyed being a part of the Citywide STEM Exhibition experience. She was always encouraged by the students' projects and enjoyed their eagerness to share their research. She expressed hope in the future through the quality and work each STEM participant brought forth and their enthusiasm to move forward in STEM careers.



**She will be missed and fondly remembered
for her commitment to the
Chicago Public Schools Students.**



WELCOME

Greetings from Student Science Fair, Inc. Executive Director

*Welcome to the 70th Chicago Public
Schools Student Exhibition of STEM
Research.*

Your experimental and design projects are evidence of your commitment to STEM. Today your hard work is appreciated. For some of you, this is your first major fair. For others you have been here all four years of high school. This weekend is SPECIAL because of you. This weekend gives you an opportunity to: explore other topics outside your immediate interest; meet new people outside your immediate school; and create an intellectual environment to challenge your academic potential.

I would like to thank ALL of you, your parents/guardians, teacher sponsors, administrators and staff and university partners for supporting your efforts in STEM research. Keep up the great work. You may discover: a cure for a disease; a genetic engineering technique more advance than CRISPR; and/or an invention to save the planet. Yes, our future really depends on your discoveries, curiosities and explorations.

A big Thank you to all of the judges and volunteers; the CPS Student Science Fair, Inc Board of Directors and our many corporate sponsors. Thank you Chicago Public School and especially a HUGE thank you to Illinois Tech for hosting our 70th Chicago Public School Student Exhibition of STEM Research.

Sincerely,

Elizabeth S. Copper
CPSSSF, Inc., Executive Director



CHICAGO PUBLIC SCHOOLS
STUDENT SCIENCE FAIR, INC



Greetings from BP America, Inc. Corporate Sponsor

Students,

On behalf of BP America, congratulations on your participation in the 70th annual Chicago Public Schools City Science, Technology, Engineering and Math (STEM) Exhibition.

BP is a proud supporter of the City STEM Exhibition because we know that to be prepared for the jobs of tomorrow, students need a strong foundation in STEM today. In fact, many BP team members got their start by participating in science fairs just like this one!

On behalf of my more than 3,500 BP colleagues in Chicagoland, we're extremely proud of the effort and dedication it's taken for you to reach this level of success. Your work highlights the importance of invention and innovation. No matter what career you decide to pursue, you'll be well-served by the skills you've learned through this event.

Again, congratulations to all the City STEM Exhibition participants, families and teachers.

BP employee and Board President, Chicago Public Schools Student Science Fair, Inc.



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CHICAGO PUBLIC SCHOOLS
STUDENT SCIENCE FAIR, INC



Greetings from ComEd, An Exelon Company Corporate Sponsor

To our Student STEM participants,

Congratulations on being part of the 70th annual Chicago Public Schools Exhibition of Student STEM Research! Whether this is your first science exhibition, or you have participated in the past, we are thrilled that you decided to explore your potential in STEM.

Developing a project for the exhibition is both a challenging and rewarding experience. You've put your knowledge of reading, writing, math, critical thinking, data analysis, and computer science to work. Soon, you'll also get to practice public speaking by explaining and defending your project to a panel of judges.

This process helps you build the skills you'll need for a successful career in STEM. That is why ComEd continues to energetically support the science fair and students like you. We know that events like these are key to your personal and professional development and provide you with the skills you need to be part of our future workforce in Illinois.

I hope that building your projects over the last few months gives you a taste of the excitement that comes with a career in STEM. We wish you the best at this next level of competition and look forward to seeing your projects!

Joe Dominguez
CEO, ComEd



WELCOME

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An Exelon Company



Greetings from Motorola Solutions Foundation, Corporate Sponsor

To all Student STEM Participants

Congratulations on being selected as a participant in the Chicago Public Schools Exhibition of Student STEM Research! We are proud of your interest in STEM learning and encourage you to continue to explore the world around you.

At Motorola Solutions, our employees share your passion for innovative exploration. As our global team of engineers, innovators, strategists and technicians develop new technology solutions to help build safer cities and thriving communities, they use many of the processes you're demonstrating today.

Motorola Solutions and the Motorola Solutions Foundation are proud to support your commitment to learning. We extend our appreciation to your teachers, family, fellow classmates and volunteers who have helped you reach this level of success. We encourage you to continue to be your best and create the discoveries and innovations of tomorrow that will make the world a better place.

Best Regards,

Monica Mueller
Executive Director
Motorola Solutions Foundation



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FOUNDATION



Greetings from Peoples Gas Corporate Sponsor

Welcome to the 2020 Exhibition of Student STEM Research.

Through our partnership with Chicago Public Schools, Peoples Gas has a proud tradition of supporting the education of Chicago's future workforce and its next generation of community, business and civic leaders.

The CPS science fair has provided an opportunity for generations of students to showcase their talents and achievements in the areas of science, technology, engineering and math. The students exhibiting their projects here today offer a look at our future. They are the teachers, engineers and scientists of tomorrow.

The themes of the research may have changed over the years, but the dedication to excellence by CPS students has remained constant. We salute their hard work, curiosity and determination.

At Peoples Gas, we have been longtime supporters of the exhibition both as a corporate sponsor and through our volunteer efforts. Throughout the year, Peoples Gas engineers serve as advisers to middle school science clubs, helping students prepare their projects. Many of our current and former employees also are serving as judges today, and some have been judges for many years.

Careers in the energy industry are growing and changing every day, offering great opportunities for the next generation of workers. When I think about the talent displayed at this exhibition, it gives me great confidence about the future of our industry.

On behalf of everyone at Peoples Gas, congratulations to the students competing in the 2020 Exhibition of Student STEM Research, and thank you to the teachers, staff, parents and judges who made it possible.

Charles Matthews
President and CEO
Peoples Gas



WELCOME

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We Keep Life Moving



Greetings from Illinois Tech

*Welcome from the President of
Illinois Tech*

Discover, Create and Solve

More than 125 years ago, Illinois Tech was founded to provide young people with the opportunity to learn the knowledge and skills needed to solve society's most pressing challenges.

As participants in the 70th Annual CPS Exhibition of Student STEM Research, hundreds of students from across the city will join the illustrious ranks of Chicago's leaders, dreamers, and visionaries on the forefront of science, technology, engineering and mathematics. We welcome these young innovators in the same spirit that we welcome our own students, encouraging them to make Illinois Tech a place where they can imagine solutions and make them real.

We thank the parents, teachers, judges and supporters who have helped to make this event a reality.

We wish a warm welcome to all and hope that each of you have an unparalleled opportunity to discover, create, and solve here at Illinois Tech.

Best Wishes,

Alan W. Cramb
President
Illinois Institute of Technology



ILLINOIS INSTITUTE
OF TECHNOLOGY
College of Science



Greetings from the Chicago Public Schools Chief Education Officer

*Dear STEM Exhibition Students,
Parents and Educators,*

As the Chief Education Officer for Chicago Public Schools (CPS), it is my pleasure to welcome you to the 70th Chicago Student Citywide STEM Exhibition.

Our mission at CPS is to provide a high-quality public education for every child, in every neighborhood of Chicago. In our five-year vision, we identify academic competitions as one way for our students to flex their creativity, follow their passions, and develop critical 21st century skills that will prepare them for success in college, career, and civic life. The STEM Exhibition provides students from across the city with the opportunity to explore issues in the areas of Science, Technology, Engineering and Math (STEM). By developing their own work plans and solving complex problems, students can use their projects from this exhibition as a springboard to a possible future in a STEM field, which are among the fastest-growing career opportunities in today's economy.

In addition to the academic benefits, this STEM Exhibition helps our students build their confidence, communication and leadership skills, preparing them to serve as our city's next generation of leaders. I want to congratulate our students on their hard work, and I thank the families and teachers who have been such a great source of support for them along the way.

I wish all of our participants the best of luck, not only during this STEM Exhibition, but throughout the rest of the school year and in all your future endeavors.

Sincerely

LaTanya D. McDade,
Chief Education Officer
Chicago Public Schools,



WELCOME





Greetings from the CPS Manager, Academic Competitions

Dear STEM Exhibition Students, Parents, and Educators,

On behalf of the Academic Competitions team, I am proud to welcome students, teachers, volunteers, and staff to the 70th Annual Exhibition of Student STEM Research! Congratulations to the students and the teachers who have guided students' advancement to this prestigious event. This event is a collaborative effort with CPS Student Science Fair, Inc. to celebrate you.

Students and teachers spend an immense amount of time and dedication to develop projects, test and analyze them prior to presenting them before you today. Additionally, teachers serve in the critical role of guiding their students and coaching them through the project development process. Both teachers and students have often sacrificed time beyond the school hours to ensure today's presentation is successful.

I also want to extend a warm thank you to our partners at Student Science Fair, Inc., staff and volunteers for making this event possible. Our partners are a committed group of professionals who devote their time to fundraising, planning, and organizing this event. Their arduous work is carried out with the goal to improve student outcomes, engage them in meaningful academic work, and prepare them for the growing fields of science, technology, engineering, and mathematics. STEM Exhibition participants learn critical academic skills. They also practice time management and discipline. The skills students acquire from STEM Exhibition will assist them succeeding in the classroom and in their future careers. I believe that we get closer to accomplishing our aims for every cohort of students each year.



I hope you enjoy this event and highly encourage you to participate next year.

Sincerely, ,

Sylvia Nelson Jordan
Manager
Academic Competitions





Greetings from the 2020 Exhibition of Student STEM Research Chairperson

Congratulations students!

All your hours of hard work have paid off and you have earned your place as a participant in our 70th Exhibition of Student STEM Research at Illinois Tech (Illinois Tech). I am excited and honored to be the 2020 Exhibition of Student STEM Research Chairperson for our platinum year with the theme of Standing on the Shoulders of STEM.

As a science teacher, every year I watch as our students use their curiosity, creativity, and passion for STEM to complete their Experimental and Design projects. Seeing their research gives me great hope for the future of our city, state, country, and world. I get inspiration from observing students with the drive to do their best utilizing the opportunities that participating in the Exhibition of Student STEM Research provides. They pursue their goals with networking, awards, scholarships, the Illinois Junior Academy of Science State competition, and the pinnacle prize: International Science and Engineering Fair.

A sincere thank you to students, parents, guardians, teacher sponsors, school administrators, and staff for your support of the Exhibition of Student STEM Research. I would also like to thank all the judges and volunteers donating their time to our students. A special thank you to all of the committee chairpersons and their committee members over the years who have helped make 70 years of the Exhibition of Student STEM Research possible.

Thank you to the CPS Student Science Fair, Inc. Board of Directors, and our major corporate sponsors: BP America, ComEd An Exelon Company, Motorola Solutions Foundation, and Peoples Gas. In addition, thank you to Chicago Public Schools for the academic support of our students and to Illinois Tech for hosting the exhibition this year.



Sincerely,

Carrie Kaestner
2020 Exhibition of Student STEM Research
Chairperson
Chicago Public Schools Student Science Fair, Inc.

WELCOME



CHICAGO PUBLIC SCHOOLS
STUDENT SCIENCE FAIR, INC



Peoples Gas is proud to support the 2020 Exhibition of Student STEM Research.

As long-time supporters, we are always amazed by these brilliant students who, this year, are Standing on the Shoulders of STEM.

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Corporate Sponsors

Beginning in 1958, the scope and complexity of the STEM Exhibitions outgrew the ability of the Chicago Board of Education and the teacher volunteers to continue without financial support from the business community. Illinois Bell Telephone was the first to recognize the importance of this premier academic event to the students of this city and participated as a corporate sponsor.

We are particularly grateful to those at Motorola Solutions Foundation, ComEd, An Exelon Company, BP America, Inc. and Peoples Gas. whose leadership, and generous financial contributions made this year's Exhibition of Student STEM Research possible.

Over the years, the involvement, responsibilities, and

obligations of the corporate sponsor have evolved. Currently, CPS Student Science Fair, Inc. asks the following of the corporate sponsor:

- Provide a substantial contribution, a minimum of \$25,000, for operating capital and/or scholarships
- Provide assistance in soliciting additional funds for the balance of the costs incurred.
- Provide help in securing a corporate sponsor for the next year's Student STEM Exhibitions.

For further information about becoming a corporate sponsor please send inquiries to CPS Student Science Fair, Inc., P.O. Box 803945, Chicago, IL 60680-3945

We would greatly appreciate your partnership.

2020	BP America, Inc. ComEd, An Exelon Company The Motorola Solutions Foundation Peoples Gas	2013	Takeda Global Research & Development Center, Inc. BP America, Inc., ComEd, An Exelon Company The Motorola Solutions Foundation	1996-97	Foundation The Motorola Solutions Foundation
2019	BP America, Inc. ComEd, An Exelon Company The Motorola Solutions Foundation Peoples Gas	2012	Takeda Global Research & Development Center, Inc. BP America, Inc., ComEd, An Exelon Company The Motorola Solutions Foundation	1994-95	Argonne National Laboratory With support from The University of Chicago Board of Governors
2018	BP America, Inc. ComEd, An Exelon Company The Motorola Solutions Foundation Peoples Gas	2011	Takeda Global Research & Development Center, Inc. BP America, Inc., ComEd, An Exelon Company The Motorola Solutions Foundation	1993	Chicago Sun- Times
2017	BP America, Inc. ComEd, An Exelon Company The Motorola Solutions Foundation Peoples Gas Takeda Pharmaceuticals International, Inc.	2010	Takeda Global Research & Development Center, Inc. ComEd, An Exelon Company The Motorola Solutions Foundation	1990-92	Motorola, Inc.
2016	BP America, Inc. ComEd, An Exelon Company The Motorola Solutions Foundation Peoples Gas Takeda Pharmaceuticals International, Inc.	2006-09	BP America, Inc ComEd, An Exelon Company The Motorola Solutions Foundation	1989	Sara Lee Corporation
2015	BP America, Inc. ComEd, An Exelon Company The Motorola Solutions Foundation Peoples Gas Takeda Pharmaceuticals International, Inc.	2004-05	BP America Inc. ComEd, An Exelon Company Kraft Foods The Motorola Solutions Foundation	1988	AMOCO Corporation
2014	BP America, Inc., ComEd, An Exelon Company The Motorola Solutions Foundation Peoples Gas	2003	BP America Inc. Kraft Foods The Motorola Solutions Foundation	1987	Acme Steel Company
		2000-02	Kraft Foods The Motorola Solutions Foundation	1986	Interlake Corporation, Inc.
		1999	The Motorola Solutions Foundation	1985	Chicago Sun-Times
		1998	Kraft Foods The Motorola Solutions	1984	First National Bank of Chicago
				1983	Peoples Gas
				1982	Illinois Bell Telephone
				1981	Sears, Roebuck and Company
				1980	International Harvester
				1979	Morton Norwich
				1978	Bell & Howell
				1977	Zenith Radio Corporation
				1976	Standard Oil (Indiana)
				1975	U.S. Steel
				1974	Commonwealth Edison
				1973	Harris Bank
				1972	Peoples Gas
				1971	Motorola, Inc.
				1970	Illinois Bell Telephone
				1969	Borg-Warner
				1968	Western Electric
				1967	Sears, Roebuck and Company
				1966	Inland Steel
				1965	Montgomery Ward
				1964	Standard Oil (Indiana)
				1963	Swift & Co.
				1962	Commonwealth Edison
				1961	International Harvester
				1960	Peoples Gas
				1959	U.S. Steel
				1958	Illinois Bell Telephone



Contributors

To all of those who contributed to the operating, scholarship funds and Special Awards & Tours, we offer a very special THANK YOU for helping make the 2020 Exhibition of Student STEM Research a success.

Operating Fund

Donations to the Operating Fund help produce the City Exhibition of Student STEM Research, the Regional Networks Student STEM Exhibitions and many programs supporting students' independent research for Student STEM Exhibitions.

Academic Sponsor

- CPS, Office of Teaching and Learning

Site Sponsor

- Illinois Tech

Corporate Sponsor – \$25,000 Minimum

- BP America, Inc.
- Chicago Public Schools

- ComEd, An Exelon Company
- Motorola Solutions Foundation
- Peoples Gas

Executive Circle - \$5,000 Minimum

- The Baxter International Foundation.
- Illinois Tool Works
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Angels - \$1,000 Minimum

- Anonymous
- Best Buy Purchasing LLC

Donors - \$100 Minimum

- CVR Building Management
- Morton Suggestions
- Naylor Pipe Company
- Network for Good
- Frances Vadervoort

Scholarship Fund and Special Awards and Tours

Donations to the Scholarship Fund go to qualified high school seniors who have presented a project at a Regional and/or City-wide Student STEM Exhibitions and will major in one of the STEM in college. Donations to the Special Awards and Tours go directly to students, whose projects meet criteria set by the donors and are selected by Special Awards Judges.

Benefactors of Academic Scholarships

- DePaul University
- Illinois Tech
- Loyola University
- University of Chicago
- University of Illinois at Chicago
- University of Illinois at Urbana-Champaign

Executive Circle - \$5,000 Minimum

- Roy Coleman & Dianna Uchida
- VelocityEHS

Angels - \$1,000 Minimum

- BP America, Inc.
- Kovler Family Foundation
- Chicago Intellectual Property Alliance
- ComEd, An Exelon Company
- The Fogelson Family Foundation
- Marilyn Levin & Stephen Lowe

- Henry Rosenbaum
- Motorola Solutions Foundation
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- University of Notre Dame
- Kenneth Zdunek & Mary Memhardt

Patrons - \$500 Minimum

- Denise Michelle Gamble
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- Richard Lange
- Rudy Lubov
- Stephen McVeigh
- Stella Muir
- National Sorority of PDK
- Charms, Inc. – Chicago Chapter
- Melvin Slater

If you are interested in supporting Student STEM Exhibitions or becoming a sponsor, additional information can be obtained by sending an inquiry to CPS Student Science Fair, Inc., P.O. Box 803945 Chicago, IL, 60680-3945, or by contacting Luba Johnson at ljohnson131@cps.edu.



Symposium and Essay Contests

Symposium Information

Symposium is an integral and popular feature of the Chicago Public Schools Exhibition of Student STEM Research. This event held on Thursday, March 19, 2020, takes place at Illinois Tech in Hermann Hall. Student presenters from Grades 9–12, through their teacher sponsor, first submitted a scientific research paper. In January, a committee of volunteer readers evaluated these papers; and research papers were chosen to be presented on March 19, 2020. Each student must have performed the primary research described in their paper, must defend the scientific merit of the research, and display written and oral communication skills. During the Symposium competition, a panel of judges from the scientific, academic, and business communities listen to, question, and evaluate each presentation. Fifteen finalists are selected to participate at the Illinois Junior Academy of Science (IJAS) State Science Fair at Millikin University in Decatur, Illinois on May 1 and 2, 2020.

Essay Contests

IJAS Essay Contest

Also evaluated by volunteer readers at the January Symposium & Essay Reading Session are the essay papers submitted by students from Grades 7–12. As an ancillary activity of the State Science Fair, the IJAS sponsors an essay contest for students who conduct library research and prepare a 1500-word essay. The 2020 topic is: “Revolutionizing Science”. Five of the IJAS student essays are selected as outstanding and the top scoring essays will be forwarded to the IJAS for evaluation at the state level.



2019 Essay Contest Semi-Finalists

Ex No	Last name /First name	Grd	Network	School	Title
801	Castro, Emmanuel	12	NW16	Hubbard HS	A New World of Communication
802	Jaimie, Ariana	9	NW15	Curie HS	Ketamine and Alcohol Addiction
803	Jungo, Daisy	12	ISP	Young HS	Research Disease in Context
804	Kurkowski, Eric	10	NW14	Lane HS	CRISPR Revolutionizes Modern Biotechnology
805	Mendez, Christopher	12	NW16	Hubbard HS	Light Up the World
806	Miguel, Areli	12	NW16	Hubbard HS	Protection for All Women
807	Morales, Wendy	12	NW16	Hubbard HS	Our Fight Against the Flu
808	Sanchez, Claudio	12	NW16	Hubbard HS	Telephone's Leap into Revolutionary Science Science

* See page 27 for the Network Abbreviation Key



Symposium Schedule

Thursday, March 19, 2020

ROOM HH 010 - Session A 9:00 - 11:30 A.M..

Ex#	Student Name	Grade	Project Title	School	Category	Network
604	Pacheco, Sebastian	9	The Effect of Diet on Worm Casting Makeup	Lane HS	Biochemistry	NW14
605	Rezek, Ba-der	10	The Science Behind Smok-ing	Von Steuben HS	Biochemistry	NW14
606	Ruiz, Angela	11	One Man's Trash is Another Man's Energy	Phoenix Military HS	Biochemistry	ISP
607	Afzal, Bisma	10	Which Water Filtration Method Works the Best?	Von Steuben HS	Chemistry	NW14
608	Dhungana, Krish	11	What's in Your Water	Von Steuben HS	Chemistry	NW14
609	Santana, Dania	10	The Effect of Oxidizing Agents on Luminol	Lane HS	Chemistry	NW14

ROOM HH 002 - Session B 9:00 - 11:30 A.M.

602	Baeza, Amari	10	Music Genres on Ability to Multitask	Curie HS	Behavioral	NW15
603	Olejniczak-Similio, Evelyn	10	Positive Reinforcement vs. Punishment	Amundsen HS	Behavioral	ISP
616	Castro, Cynthia	10	What Lotion Moisturizes the Best?	Curie HS	Health Science	NW15
617	Cordoba, Isabella	9	The Pain of Playing an Instrument	Young HS	Health Science	ISP
618	Ko, Sonya	9	Who Will You Be?	Young HS	Health Science	ISP
619	Albania, Megan	11	Impact of Socioeconomic Food Disparities	Amundsen HS	Health Science	ISP
620	Li, Ohn	9	Mental Health Literacy in Schools	Whitney Young	Health Science	ISP

ROOM HH 003 - Session C 9:00 - 11:30 A.M.

601	Chie, Jenna	10	Effect of Weight on Superconductor Plane	Lane Tech HS	Aerospace	NW14
610	LeMasters, Michael	10	Analysis of Common Securities	Amundsen HS	Engineering	ISP
611	Rogel, Sofia	12	Pediatric Flexion Contracture Orthosis	Von Steuben HS	Engineering	NW14
621	Mata, Jovany	9	Making a Cde to Solve a Rubik's Cube	Curie HS	Mathematics	NW15
633	Sanchez, Jason	11	Which Insulator is Best?	Von Steuben HS	Physics	NW14

ROOM HH 010- Session D 1:00 - 3:30 P.M.

622	Aldhufari, Rossul	11	Natural Born Killers	Von Steuben HS	Microbiology	NW14
623	Dzankovic, Amer	10	Pop That Pimple	Von Steuben HS	Microbiology	NW14
624	Fonseca, Nina	10	The Effect of Autophagy on Cell Survival	Young HS	Microbiology	ISP
625	John, Jessica	10	The Effect of Acne Meds on Bacillus subtilis	Lane HS	Microbiology	NW14
626	Joshi, Riya	9	A Novel Macrophage Suppression Genetic Screen	Payton HS	Microbiology	ISP

ROOM HH 002- Session E 1:00 - 3:30 P.M.

612	Charlier, Nina	11	Photo-Remediation of Lead-Polluted Soil	Young HS	Environmental Science	ISP
613	El Orch, Adam	10	Grub for Grubs	Von Steuben HS	Environmental Science	NW14
627	Khan, Zaryaab	10	Effects of Hydrochloric Acid on B. Coagulant	Lane HS	Microbiology	NW14
628	Puczko, Michael	12	The Effect of pH on Antibiotic Efficacy	Lane HS	Microbiology	NW14
629	Yousuff, Madihah	10	Effect of Triclosan on Antimicrobial Immunity	Lane HS	Microbiology	NW14
634	Schecter, Henna	10	The Effect of Oleic Acid on Action of Ants	Lane HS	Zoology	NW14

ROOM HH 003- Session F 1:00 - 3:30 P.M.

614	Khan, Summalya	10	Biofuel: Food for the Future	Von Steuben HS	Environmental Science	NW14
615	Li, Steven	12	Environmentally Influenced Chicago Crime	Payton HS	Environmental Science	ISP
630	DiCastri, Dante	11	What's Your Angle?	Von Steuben HS	Physics	NW14
631	Patel, Lisa	9	EEfficient Pro-peller Design	Amundsen HS	Physics	ISP
632	Rizo, Citlali	10	How Does Color Absorb Heat?	Curie HS	Physics	NW14

* See page 27 for the Network Abbreviation Key



Symposium & Essay Luncheon Schedule

Thursday, March 19, 2020

Illinois Tech-Hermann Hall – Expo North – 11:30 A.M

Welcome and Remarks	Carrie Kaestner Chairperson, CPS Student Science Fair, Inc.
Introduction of Special Guest	Lucy Young Symposium & Essay Committee Chairperson
Guest Speaker	Katherine Y. Tossas-Milligan, PhD, MS Director of Global Assets & Innovative Approaches in Cancer Epidemiology, University of Illinois Cancer Center
Recognition of Symposium Participants	Jennifer Patush Symposium & Essay Committee Chairperson
Recognition of Judges (Years of Service)	Jennifer Patush Lucy Young



SYMPOSIUM THURSDAY



Exhibit Information

The CPS Student STEM Exhibition offers academically and scientifically talented young CPS students an opportunity to showcase their accomplishments. The projects on display represent the most outstanding scientific and design endeavors of students in Grades 7–12.

The exhibitors at this year's CPS Exhibition of Student STEM Research were selected from approximately 8,000 students who competed in school and regional STEM Exhibitions throughout the city during this past January and February. These winners were chosen based on their scientific or design approach, thoroughness, creativity, and presentation. Once again, we welcome CPS student winners from the QED: Chicago's Youth Math Symposium. These winners were chosen based on their mathematical approach, thoroughness, creativity, and presentation. QED is an abbreviation of the Latin phrase "quod erat demonstrandum," which is commonly used to signal the completion of a mathematical proof. We welcome all student participants to the 70th Annual City-wide Exhibition of Student STEM Research

On Friday, March 20, 2020, over 250 judges from the scientific, academic, and business communities will observe, listen to, question, and evaluate the exhibitors. Winners are selected based on established criteria as indicated in the STEM Exhibition Handbook.

The top 45 winners will participate at the Illinois Junior Academy of Science (IJAS) State Science Fair, held May 1 and May 2, 2020, hosted by Millikin University in Decatur, Illinois. Students will compete with other students from around the state.

On Saturday, March 21, 2020, the top 30 outstanding high school projects will be evaluated by a special panel of judges. Four finalists will be invited to compete at the International Science and Engineering Fair (ISEF), which is being held May 10-15, 2020 in Anaheim, California.



Some of the judges also function as Special Awards judges for the companies that have graciously sent them to evaluate the exhibitors. Each company may have one or more special criteria, in addition to the established criteria, by which to determine the recipient of its special award. All CPS Student STEM Exhibition participants will be recognized with certificates and souvenirs at the Awards Convocation on Sunday, March 22, 2020, at 1:00 p.m., in the Hermann Hall Auditorium of Illinois Tech (Illinois Institutes of Technology). Approximately 100 students will be individually recognized with cash prizes, awards, and other special gifts. In addition, all CPS Student STEM Exhibition participants are eligible to apply for financial support grants and college scholarships in their senior year of high school.

All CPS Exhibition of Student STEM Research participants are WINNERS!

If you would like to serve as a judge, please contact Yolanda Del Rio at yolanda_delrio@comcast.net to have your name added to the database. At a minimum, judges must have a degree in science, mathematics, computer science, or engineering. They may not be a current employee of the Chicago Public Schools.





Exhibit Judging Schedule

Friday, March 20, 2020

Exhibition of Student STEM Research Exhibit Judging

7:30 A.M. – 8:30 A.M.	Continental Breakfast	Hermann Hall Expo
8:00 A.M. – 8:30 A.M.	Judges Briefing	Hermann Hall Auditorium
8:30 A.M. – 10:30 A.M.	Judging of Exhibits	Hermann Hall Ballroom/Alumni Lounge/ Gallery Lounge
10:30 A.M. – 11:15 A.M.	Opening Ceremony	Hermann Hall Expo
11:15 A.M. – 1:00 P.M.	Judging Continues	Hermann Hall Ballroom/Alumni Lounge/ Gallery Lounge
11:30 A.M.-1:30 P.M.	Judges Buffet Luncheon	Hermann Hall Expo
12:00 Noon-1:00 P.M.	Recognition Luncheon	McCormick Ballroom (by invitation only)
1:00 P.M. – 3:00 P.M.	Exhibition of Student STEM Research (Open to the Public)	Hermann Hall



EXHIBIT JUDGING
FRIDAY



Exhibits by Category

Aero-Space Science

1 E	Elizabeth Schieleit	7	Hang Time	NW 14	Taft
2 E	Jakob Nagy	8	Does Size Matter?	NW 1	Beaubien
3 D	Admir Pali	10	Holes and Parachutes?	NW 14	Mather HS
4 E	Alejandro Arellano	12	Ways to Get Aero Like A Pro!	ISP	Chicago Agri HS
5 E	Omar Majzoub	12	Aerodynamics of Nose Fuselage	ISP	Jones HS

Behavioral Science

6 E	Imogen James-Downie	7	Effect of Food on Food-Word Reaction Times	NW 17	Kenwood
7 E	Ava Dean	8	Colors and Your Mood	ISP	Columbus
8 E	William Lindahl	8	Hey, What's That Noise?	ISP	Cassell
9 E	Jacquelin Ortega	8	Taste the Rainbow	NW 13	Sadlowski
10 E	Cassandra Reyna-Demes	8	Under Pressure	ISP	LaSalle II
11 E	Delilah Shaw	8	Lights! Camera! Memory!	NW 4	Hawthorne
11 E	Lilia Tanabe	8	Lights! Camera! Memory!	NW 4	Hawthorne
12 E	Tamara Zhylka	8	Effects of Video Games	ISP	Columbus
12 E	Olena Romantsova	8	Effects of Video Games	ISP	Columbus
13 E	Gabriella Earnhart	9	What Impacts Detectives in An Investigation?	ISP	Amundsen HS
14 E	Mia Fritsch-Anderson	9	Educational Intervention for Vaping in Teens	ISP	Young HS
15 E	Rachelle Perez	9	How People Process Sadness	NW 14	Lake View HS
16 E	Chiara Restuccia	9	Nocturnal Insects Light vs. Heat	ISP	Lincoln Park HS
17 E	Aileen Salas	9	Is the Human Memory Reliable?	NW 15	Curie HS
18 E	Amari Baeza	10	Music Genres on the Ability to Multitask	NW 15	Curie HS
19 E	Matthew Bell	10	Color Psychology in Test Situations	ISP	Amundsen HS
20 E	Eva Contreras	10	Test Taking	NW 15	Curie HS
21 E	Evelyn Olejniczak-Similio	10	Positive Reinforcement vs. Punishment	ISP	Amundsen HS

Biochemistry

22 E	Aditya Mandal	7	Effect of Salt on DNA Extraction	ISP	Lenart
23 E	Brooke Pitts	8	Composting Methods	NW 12	Dixon
24 E	Alima Tamatekou	8	Denaturing Proteins	NW 12	Dixon

Network (Abbreviation)

Charter (CHTR)	Network 4 (NW04)	Network 9 (NW09)	Network 14 (NW14)
Independent School Principals (ISP)	Network 5 (NW05)	Network 10 (NW10)	Network 15 (NW15)
Network 1 (NW01)	Network 6 (NW06)	Network 11 (NW11)	Network 16 (NW16)
Network 2 (NW02)	Network 7 (NW07)	Network 12 (NW12)	Network 17 (NW17)
Network 3 (NW03)	Network 8 (NW08)	Network 13 (NW13)	

EXHIBIT JUDGING
FRIDAY



Exhibits by Category

Ex#	Student Name	Grade	Title	Network	School
25 E	Autumn Wallis-Schwartz	9	Effects of Liquids on Apple Browning	ISP	Amundsen HS
26 E	Anjelo Evans	10	Phosphoproteomics of Influenza A	NW 14	Lake View HS
27 E	Bader Rezek	10	The Science Behind Smoking	NW 14	Von Steuben HS
28 E	Edwin Rong	10	Effect of Antioxidants on Banana Capacitance	NW 14	Lane HS
29 E	Angela Ruiz	11	One Man's Trash is Another's Energy	ISP	Phoenix Military HS
30 E	Kamaldeen Akorede	12	Effect of pH on Catalase Activity and Health	ISP	Amundsen HS
31 E	Nicole Alicea	12	Effect of Humidity on Cellular Respiration	ISP	Amundsen HS
32 E	Anagha Aneesh	12	Engineered Exosomes for Wound Healing	ISP	Payton HS
Botany					
33 E	Shaila Alvarez-Camberos	7	The Fertilizer Contest	NW 10	Stevenson
34 E	Isabella Gomez	7	Growing Arugula	NW 13	Washington G
35 E	Chloe Harder	7	How Does H2O2 Effect Plant Cuttings & Seeds?	NW 1	Beaubien
36 E	Erik Servin	7	Nuked Beans	NW 10	Byrne
37 E	Liliana Cochiaro	8	How to Make Cut Flowers Last Longer	NW 1	Norwood Park
38 E	Finn Collins	8	Do Onions Have Feelings?	NW 1	Norwood Park
39 E	Miranda Hernandez	8	Let the Race Begin!	NW 8	Shields Middle
39 E	Shadden Jasso	8	Let the Race Begin!	NW 8	Shields Middle
40 E	Samuel Kniffen	8	The Most Efficient Indoor Farming System	ISP	Burley
41 E	Giselle Soriano-Vega	8	Hydroponics vs. Soil	ISP	Palmer
42 E	Julia Bodea	9	Microwave Radiation and Plant Growth	ISP	Lincoln Park HS
43 E	Natalie Morro	9	The Effect of Soil Acidity on Plant Growth	ISP	Lincoln Park HS
44 E	Ryan Pazmino	9	Weed Killer on GM & WT Plant Growth	ISP	Lincoln Park HS
45 E	Kathryn Warren	9	Electrolyte Powered Growth	ISP	Amundsen HS
46 E	Xochitl Alonso	10	The Effect of Irradiation on Seeds	ISP	Marine Leadership HS
47 E	Pamela Gonzalez	11	Does A Seed Need A Seed Coat to Germinate?	ISP	Chicago Agri HS
48 E	Veronica Salgado	11	The Effect of Fertilizer on Plants	NW 14	Lake View HS
Chemistry					
49 E	Arabelia Brown	7	Sweet Snake	NW 7	Saucedo
49 E	Eileen Cedillo	7	Sweet Snake	NW 7	Saucedo
50 E	Isabella Guzman	7	The Effect of Flour on Cupcake Height	NW 17	Kenwood
51 E	Gabriela Harkabuz	7	Muffin Density	NW 10	Byrne

* See page 27 for the Network Abbreviation Key



Exhibits by Category

Ex#	Student Name	Grade	Title	Network	School
52 E	Jiayang Lin	7	Up In Smoke	ISP	Lenart
53 E	Nani London	7	Color Coated Flames	NW 5	Mason
54 E	Nylah Robinson	7	A Class ACT in Science	NW 10	Owen
55 E	Jaslynn Williams	7	How Does Temperature Affect pH?	NW 5	Frazier Intl.
56 E	Amarl Wilson	7	Zero Sugar	NW 13	Cullen
57 E	Isabel Aguirre	8	UV Light vs. Sunscreen	NW 10	Richardson Middle
57 E	Ivan Hernandez	8	UV Light vs. Sunscreen	NW 10	Richardson Middle
58 E	Lucila Beltran	8	Casein Milk	NW 1	Haugan
59 E	Jolet Garcia	8	Balloon Blow Up	ISP	Lee
60 E	Jose Guzman	8	Healthiest Brand of Water	ISP	Lee
61 E	Erika Hanna	8	Performance of Hand Warmers	NW 4	Newberry
62 E	Janyce Martin	8	pH of Water	NW 13	Hughes L
63 E	Julianna Mokaya	8	Eggcellent Tooth Decay	ISP	LaSalle II
64 E	Kamerin Whitmore	8	The Floating Egg In Water	NW 5	Lawndale
65 E	Natalia Espinoza	9	The Best Preservative Method for Guacamole	ISP	Lincoln Park HS
66 E	Emilee Ortega	9	Bath Boomb Science	NW 14	Lake View HS
67 E	Hafsa Rizwan	9	The Effect of pH on Apple Browning	ISP	Lincoln Park HS
68 E	Mila Wolf	9	The Effect of Coatings on Dissolution Rates	ISP	Lincoln Park HS
69 E	Thomas Haran	10	Electro-Analysis	ISP	Chicago Agri HS
70 E	Ali Khan	10	Aquarium Filter vs. API Quick Start	NW 14	Mather HS
71 E	Francisco Pantoja	11	Which Ibuprofen Dissolves the Fastest?	ISP	Juarez HS HS
72 E	Liliana Pulido	11	Which Anti-Acid Works the Best?	NW 13	Carver Military HS
73 E	Anayely Reyes-Trejo	12	Let Us C It Leave	ISP	Juarez HS
74 E	Tashun Steele	12	The Cool Blue Light of Luminol	NW 15	Douglass HS
Computer Science					
75 D	Kaelyn McColl	7	See Like Me	NW 15	Ogden ES
76 E	Crystal Angel	8	Programming Dexter	ISP	Columbia Explorers
77 D	Caitlyn Lam	9	Minimizing Screen Time	ISP	Young HS
78 D	Rachel Hoffman	10	Using Computers to Optimize Crop Yield	NW 14	Lane HS
79 D	Caleb Shin	11	Tackling Toxicity With Deep Learning	ISP	Payton HS

* See page 27 for the Network Abbreviation Key

EXHIBIT JUDGING
FRIDAY



Exhibits by Category

Ex#	Student Name	Grade	Title	Network	School
Earth Science					
80 E	Nathan Ruger	8	Soiled You Again	NW 4	Audubon
Electronics					
81 D	Daniel Ingram	7	Alarming littleBits 2.0	NW 9	Murray
82 E	Kyle Henikman	8	Digital Frequency	NW 3	Locke
83 D	Anna Polkowski	8	The Working of Your Heart Beat	NW 1	Dever
84 E	Nikki Nguyen	9	Effects of Different Materials on WiFi	NW 14	Mather HS
85 D	Abiha Hussain	10	Charger To-Go	NW 14	Mather HS
Engineering Science					
86 D	Henry Bleck	7	The Wave Stopper	NW 1	Edison RGC
87 D	Susana Hernandez	7	Designing A Robot to Help the Environment	ISP	Burroughs
88 D	Yuri Kolovos	8	Rescue Robot II	ISP	Budlong
89 E	Kayla Nguyen	8	Are the London Bridges Falling Down?	ISP	Sheridan
90 D	Gavin Stiglitz	8	Taking A Shot At Building An Autoinjector	NW 4	Hawthorne
91 D	Emilia Touw	8	Third Eye	NW 4	Audubon
91 D	Amelia Lema	8	Third Eye	NW 4	Audubon
92 D	Joy Williams	8	Bird Safe Wind Turbines	NW 10	Kellogg
93 D	Anthony Pereira	9	Dooring	ISP	Young HS
94 D	Malina Ventura	9	Roof Safety Platform	ISP	Chicago Agri HS
95 D	Logan Blume	10	The Cool Helmet	NW 14	Von Steuben HS
96 D	Daniel Kroger	10	What Would You Do With A Breath of Fresh Air?	ISP	Phoenix Military HS
97 D	Tomasz Krzeminski	10	3D Printed Solar Panel Concentrator	NW 14	Lane HS
98 E	Michael LeMasters	10	Analysis of Common Securities	ISP	Amundsen HS
99 E	Karen Menez	10	Filtering to Obtain the Best Drinking Water	NW 14	Kelvyn Park HS
100 D	Dhruv Bala	11	Autonomous Driving Capability on Sidewalks	NW 14	Lane HS
101 E	Nicole Daraban	11	Which Truss Is Trustful?	NW 14	Von Steuben HS
102 D	Guadalupe Pulido	11	Exploring the World of Prosthetics	NW 13	Carver Military HS
103 D	Gabriele Ron	11	The Efficiency of EM Energy Harvesting	NW 14	Lane HS
104 D	Sofia Rogel	12	Pediatric Flexion Contracture Orthosis	NW 14	Von Steuben HS
105 E	Jarvis Williams	12	Wind Energy Production on Windmill Models	ISP	Chicago Agri HS
Environmental Science					
106 E	Ayla Carli	7	Cost of Carbon	NW 6	Burr

* See page 27 for the Network Abbreviation Key



Exhibits by Category

Ex#	Student Name	Grade	Title	Network	School
107 E	Sylvia Foster-Rice	8	Natural Water Filters	NW 2	Waters
108 E	Chloe Gallagher	7	Fantastic Plastic	ISP	Coonley
109 E	Nina Grice	7	Cooking Up Science	NW 13	Haley
110 E	Maya Petrovich	7	The Quality of H2O	NW 6	Burr
111 E	Analy Vega	7	Biofuels vs. Fossil Fuels	NW 16	Lindblom
112 E	Wendy Deng	8	Oil Spills	NW 6	Healy
113 E	Eychaja Harrington	8	Can Nanotechnology Clean Up Oil Spills?	NW 5	Frazier Int'l
114 E	Braulio Leon-Garcia	8	Danger Amongst Us!	NW 8	Shields Middle
115 E	Alexia Oliveira	8	Rocking With Erosion	NW 6	Healy
116 E	Piper Evans	9	Green Infrastructures: Preventing Runoff	ISP	Amundsen HS
117 E	Adam El Orch	10	Grub for Grubs	NW 14	Von Steuben HS
118 E	Megan Huynh	10	Neon Lights, Colors Bright	ISP	Amundsen HS
119 E	Sara Lopez	10	The Effect of Road Salt on the pH of Soil	NW 14	Lane HS
120 E	Marisa Martinez	10	The Effect of Juglone on Root Growth	NW 14	Lane HS
121 E	Nicole Sandu	10	Effect of Deforestation on V.globator Growth	NW 14	Lane HS
122 E	Nina Charlier	11	Phyto-Remediation of Lead Polluted Soil	ISP	Young HS
123 E	Andrew Martin	11	Radiation and the Environment	ISP	Chicago Agri HS
124 E	Yulissa Ramirez	11	Polluted Plants	NW 13	Carver Military HS
125 E	Taji Young	11	Plastic in Water	NW 14	Von Steuben HS
126 E	Steven Li	12	Environmentally Influenced Chicago Crime	ISP	Payton HS
127 E	Maeghan O'Laughlin	12	Acid Rain on Mycorrhizal Soybeans	ISP	Chicago Agri HS
128 E	Amalia Petropoulos	12	Efficacy of Kernza on Soil Health	NW 14	Mather HS
Health Science					
129 E	Shyraine Davis	7	Calorie Burn	NW 13	Mt Vernon
129 E	Kalijah Jones	7	Calorie Burn	NW 13	Mt Vernon
130 E	Praniha Karri	7	Green Tea vs. Altace	ISP	Chappell
131 E	Michael Bastian	8	Eat the Heat, Feel the Beat	ISP	Cassell
132 E	Katelin Brock	8	The Effect of Acidity on Bone Stability	NW 12	Earhart
133 E	Karen Escobar-Salgado	8	Are Hand Dryers Harmful to Our Hearing?	ISP	Burroughs
134 E	Morgan Gonzales	8	Music in My Blood	NW 10	Sutherland
135 E	Antonio Gonzalez	8	C-Section Protection	NW 3	Locke
136 E	Eve McMillin	8	A Dose of Glucose	NW 4	Hawthorne

* See page 27 for the Network Abbreviation Key

EXHIBIT JUDGING
FRIDAY



Exhibits by Category

Ex#	Student Name	Grade	Title	Network	School
137 E	Isabella Cordoba	9	The Pain of Playing An Instrument	ISP	Young HS
138 E	Geseli Gonzalez	9	Timing Your Reading	ISP	Young HS
139 E	Ohn Li	9	Mental Health Literacy in Schools	ISP	Young HS
140 E	Fariya Adil	10	Light vs. Blood Pressure	NW 14	Mather HS
141 E	Cynthia Castro	10	The Effectiveness of Lotions	NW 15	Curie HS
142 E	Izabella Journet	10	Effects of Whitening Ingredients on Enamel	NW 14	Lake View HS
143 E	Laiba Khan	10	Chapped Lips No More	NW 14	Mather HS
144 E	Madeline Oktem	10	The Effect of Different Ingredients on Teeth	NW 14	Lake View HS
145 E	Rebeca Raphael	10	Exercising on Students Performance	NW 14	Mather HS
146 E	Violeta Lanza	12	The Most Effective Sunscreen	ISP	Juarez HS
Materials Science					
147 E	Ranyia Peterson	7	The Strength of Eggshells	NW 5	Lawndale
148 E	Emely Rodriguez	7	Affects on Electric Paint	ISP	Kinzie
149 D	Zuzana Bielak	8	Biodegradable Plastic	NW 1	Dever
150 E	Dominika Kos	8	Dissolving Soap Bars	NW 10	Byrne
151 E	Ava Manrique	8	Bread Mold vs. Container	ISP	LaSalle II
152 E	Franco Berardi	9	Temperature on Rubber Band Elasticity	ISP	Lincoln Park HS
153 E	Stephanie Sanchez	9	How Much CO2 Do I Have?	ISP	Phoenix Military HS
154 E	Nathan Smolensky	11	The Effect of Temperature on Bunce Height	NW 14	Lake View HS
Mathematics					
155 E	Daniel Baeza	7	Which Car is Most Efficient?	NW 13	Grissom
156 D	Samantha Bratley	7	Cut It Up	ISP	Whitney Young
156 D	Natalie Chlebus	7	Cut It Up	ISP	Whitney Young
157 E	Miles Jung	7	Frogs on a Log	ISP	Whitney Young
157 E	Aadi Kalra	7	Frogs on a Log	ISP	Whitney Young
158 E	Axel Olson-Brady	7	Dice Rolls Experimental and Theoretical	NW 1	Peterson
159 E	Isabella Alnemri	8	Spay and Neuter Rates Affect Euthanasia	NW 13	Grissom
160 E	Henry Bao	8	Tic-Tac-Toe: Rubik's Cube Edition	ISP	Whitney Young
160 E	John Penn	8	Tic-Tac-Toe: Rubik's Cube Edition	ISP	Whitney Young
161 D	Ricardo Cabrera	8	The Circle Game	NW 16	Lindblom

* See page 27 for the Network Abbreviation Key



Exhibits by Category

Ex#	Student Name	Grade	Title	Network	School
162 D	Julia Kim	8	3-D Sudoku	ISP	Whitney Young
162 D	Si-Eun Rhee	8	3-D Sudoku	ISP	Whitney Young
163 E	Laerdon Kim	8	Tower Tinkering	ISP	Whitney Young
163 E	Noelani Siharath	8	Tower Tinkering	ISP	Whitney Young
164 D	Phoebe Koehler	8	Game Features of Mastermind	ISP	Whitney Young
164 D	Axel Hinz	8	Game Features of Mastermind	ISP	Whitney Young
165 D	John Fabrycky	9	Probability of Imposter Transiting Exoplanet Host Stars	ISP	Jones HS
166 D	Zach Gillis	11	The Table: An Exploration	ISP	Payton HS
167 D	Elizabeth Kujawa	11	Distributions of Lines Reflected Off Curves	ISP	Payton HS
168 E	Elizabeth Martinez	11	The Repopulation of Japan With 5 Pairs	ISP	Phoenix Military HS
Microbiology					
169 E	Adonijah Hall	8	Contact Lens Solutions	NW 9	Hendricks
170 E	Nicole Kozlowski	8	The Science of Food Storage	ISP	Thorp O A
170 E	Veronica Florczak	8	The Science of Food Storage	ISP	Thorp O A
171 E	Ian Pratt	8	Slime Time!	NW 4	Audubon
172 D	Maya Joshi	9	Novel mRNA Vaccine to Prevent Yellow Fever	ISP	Payton HS
173 D	Riya Joshi	9	A Novel Macrophage Suppression Genetic Screen	ISP	Payton HS
174 E	Amer Dzankovic	10	Pop That Pimple	NW 14	Von Steuben HS
175 E	Nina Fonseca	10	The Effect of Autophagy on Cell Survival	ISP	Young HS
176 E	Gelsey Guijosa	10	Enzymes Making Biofuels With Plants	ISP	Marine Leadership HS
177 E	Grisel Sanchez	10	Science of Aquaponics	ISP	Marine Leadership HS
178 E	Cristian Carpio	12	Genetic Analysis of AML Cell Lines	ISP	Payton HS
179 E	Junbin Huang	12	Regulation of Wnt Pathway Through Vitamin D	ISP	Payton HS
180 E	Michael Puczko	12	The Effect of pH on Antibiotic Efficacy	NW 14	Lane HS
Physics					
181 E	Joshua Alfaro	7	How Loud Can A Paper Speaker Get?	ISP	Addams
182 E	Noah Bjurstrom	7	Slowing Down the Acceleration of Gravity	NW 2	Waters
183 E	Isabella Peterson	7	Producing Energy: Solar or Wind Power?	NW 1	Beaubien

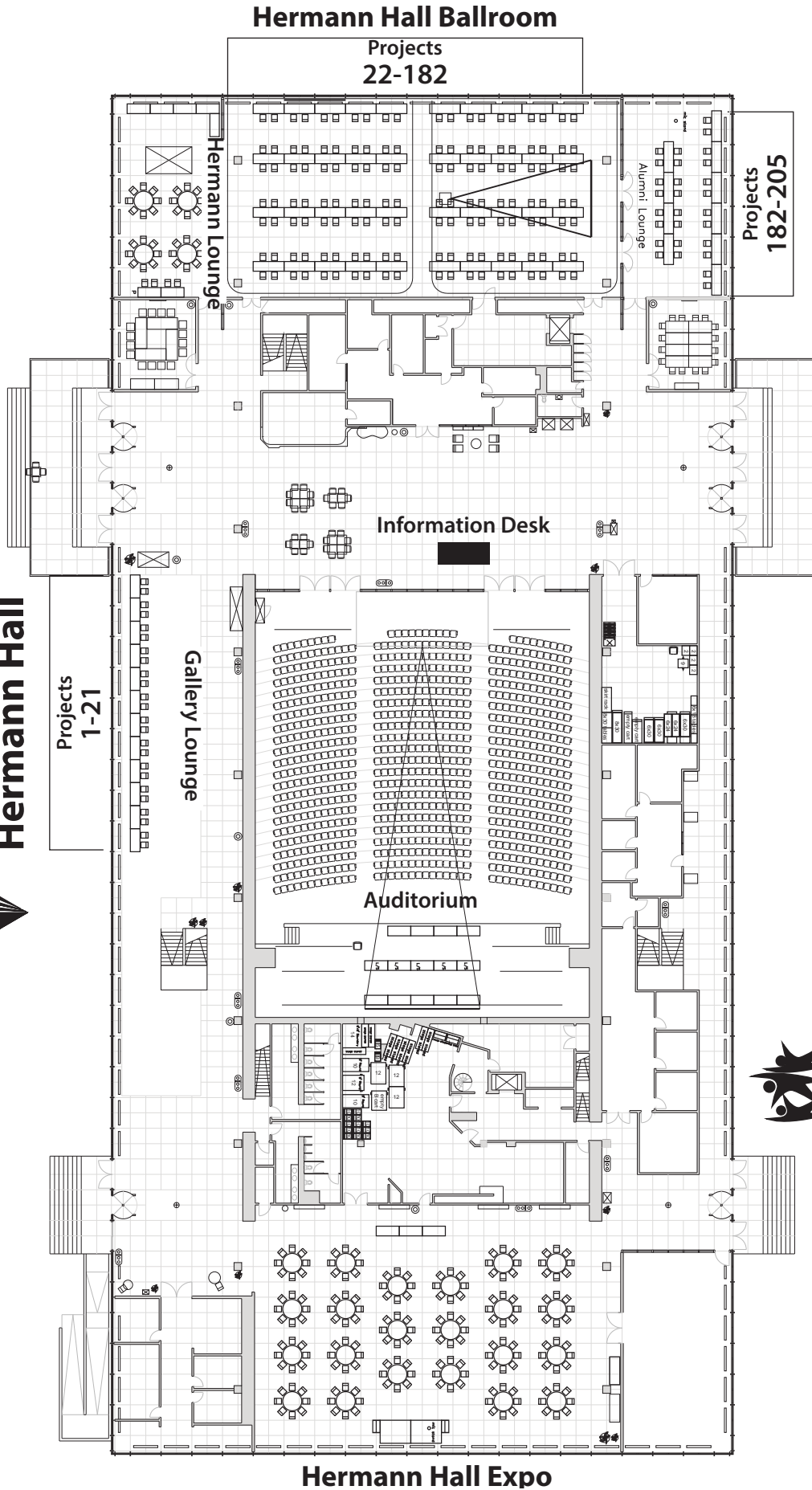
* See page 27 for the Network Abbreviation Key

EXHIBIT JUDGING
FRIDAY

184 E	Mischa Reddy	7	The Shining	NW 14	Taft
185 E	Crystal Reyes	7	Can You Lift?	ISP	Burroughs
186 E	Caleb Sun	7	Transparency and Speed of Light	ISP	Lenart
187 E	Jonathan Czaszwicz	8	Wow, That's Fast, or Is It?	ISP	Cassell
188 E	Je'Taun Ellis	8	The Sound of Energy	NW 5	Lawndale
189 E	Amelia Oldak	8	Chemiluminescence: Will It Glow?	NW 1	Dever
190 E	Nicki Ta	8	Which Type of Airfoil Creates the Most Lift?	NW 1	Beaubien
191 E	Zayd Majzoub	9	Optimum Blade Angle for Thrust	ISP	Jones HS
192 E	Jerry Menez	9	Which Materials Can Block Radio Waves?	NW 14	Kelvyn Park HS
193 E	Julia Risk	9	The Effect of Sail Shape on Boat Speed	ISP	Lincoln Park HS
194 E	Elijah Spencer	9	Exploring Bernoulli's Principle	ISP	Chicago Agri HS
195 E	Nevaeh Wade	9	Sound Waves vs. Water Waves	NW 14	Kelvyn Park HS
196 D	Azucena Alonso	10	Moisture Sensor Used to Grow Plants	ISP	Marine Leadership HS
197 E	Jersey Merrick	10	Magnetic Acceleration Device	ISP	Chicago Agri HS
198 E	Ana Rivas	10	How to Soundproof at Home!	NW 14	Kelvyn Park HS
199 E	Citlali Rizo	10	How Does Color Absorb Heat?	NW 15	Curie HS
200 E	Dante DiCastri	11	What's Your Angle?	NW 14	Von Steuben HS
201 E	Jason Sanchez	11	Which Insulator is Best?	NW 14	Von Steuben HS
202 E	Donald Tichy	12	Anti-Gravity Propulsion	ISP	Chicago Agri HS
Zoology					
203 E	Hazel Fenske-Newbart	8	How Many Sea Monkeys Do You See?	NW 6	Jackson A
204 E	Brianna Berry	10	Meals At The Table	NW 16	Morgan Park HS
205 E	Henna Schecter	10	The Effect of Oleic Acid on Actions of Ants	NW 14	Lane HS



**Illinois Tech
Hermann Hall**



STANDING ON THE SHOULDERS OF STEM

70th Annual Chicago Public Schools Exhibition of STEM Research

**EXHIBIT JUDGING
FRIDAY**



Student Exhibitors

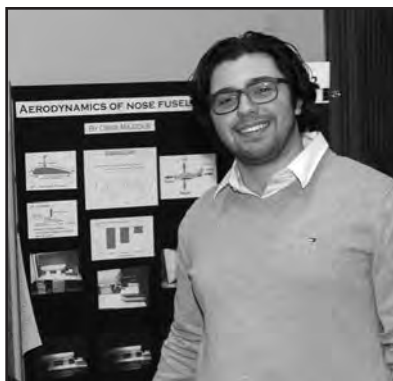
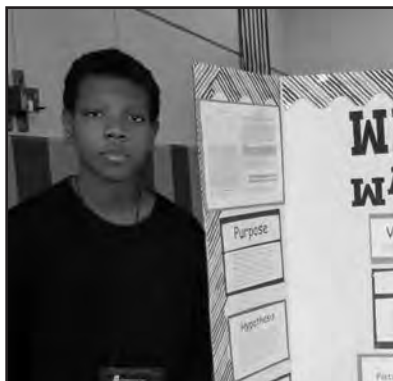
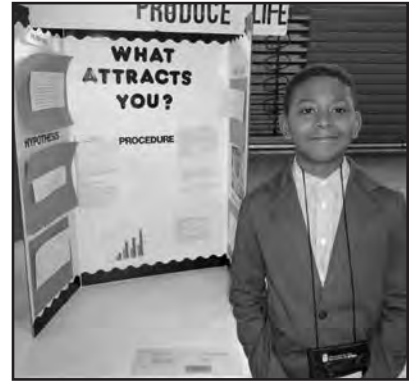


EXHIBIT JUDGING
FRIDAY



Student Exhibitors

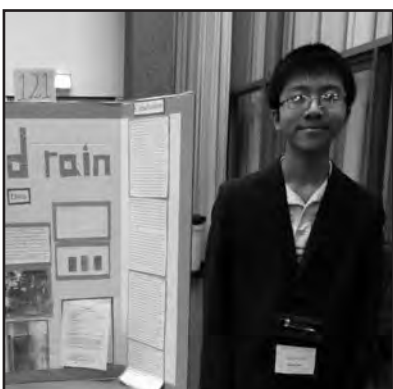
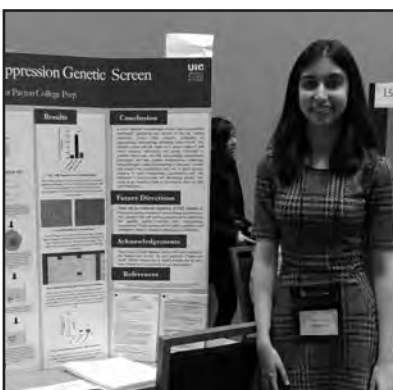
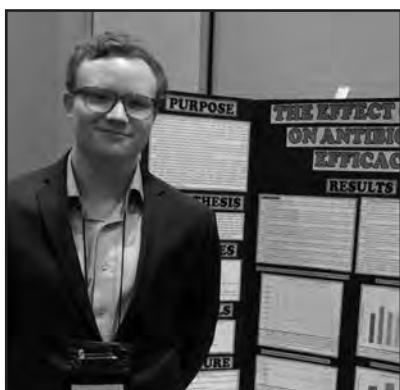
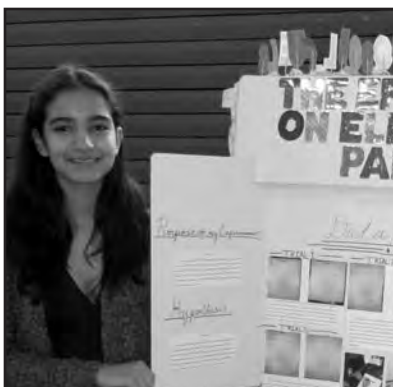


EXHIBIT JUDGING
FRIDAY



Student Exhibitors

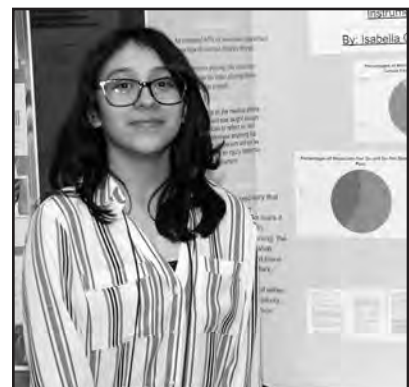
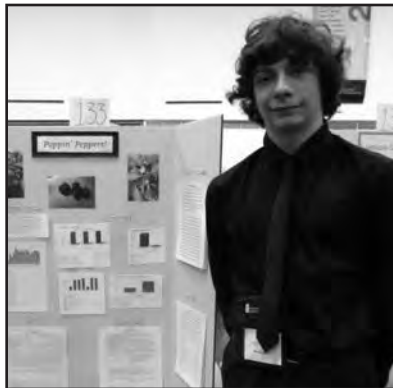
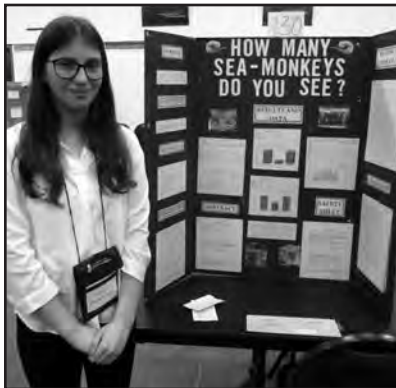
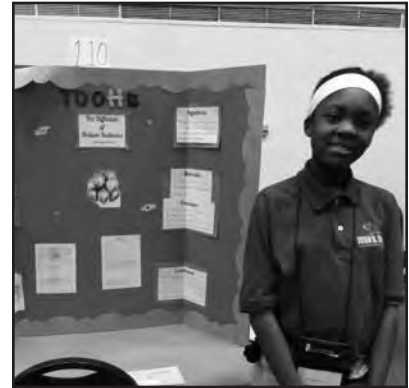


EXHIBIT JUDGING
FRIDAY



Sixth Grade Regional Exhibitions Winners Recognition Luncheon

Saturday, March 23, 2020

11:45 A.M. – Hermann Hall Expo

Welcome	Jeanette Bartley <i>Chairperson</i> <i>CPS Student Science Fair, Inc.</i>
Remarks	Elizabeth Copper <i>Executive Director</i> <i>CPS Student Science Fair, Inc.</i> Carrie Kaestner <i>Chairperson-Elect</i> <i>CPS Student Science Fair, Inc.</i>
Presentation of Awards	Jeanette Bartley Carrie Kaestner Elizabeth Copper
Group Photo	Allan Reisberg <i>Chairperson, Digital Imaging</i> <i>CPS Student Science Fair, Inc.</i>



**PUBLIC VIEWING & 6TH GRADE
LUNCH - SATURDAY**



Sixth-Grade Regional Winners

List of 2020 Sixth-Grade Regional Winners

Name	School	Project Title	Network
Cabrera, Olivia and Perez, Ariana	Addams	M & M Math	ISP
Vargas, Joscelyn	Carson	What's On Your Face?	ISP
Korda, Ellis	Peterson	Right vs. Left: The Battle for Dominance	NW01
Keener, Alexis	Decatur	Can't You Remember?	NW02
McCaffrey, Will and Nanda, Aditya	Decatur	The Effect of Chicago Water on Plant Growth	NW02
Curtis, Cherish	Sayre	Does Age Impact Personality Disorders?	NW03
Berman, Shaina	Skinner	Can Colors of Paper Affect Test Scores?	NW04
Wu, Jaslyn	LaSalle	Exercise and CO2 Output	NW04
Young, Jayla	Mason	Non Pourous vs. Porous	NW05
Sturkey, Cha'raye	Mason	Maple Syrup Textures	NW05
Salinas, Danilea	Galileo	Hydraulics Claw Machine	NW06
Curb, Mari'el	Owen	Keep Calm But 1st Put Goggles On! Splash	NW10
O'Neal, Quincy	Earhart	Does Eggs Shrink or Grow?	NW12
Scott, Joshua	Pirie	Plop! Plop! Fizz! Fast!	NW12



PUBLIC VIEWING & 6TH GRADE
LUNCH - SATURDAY



Awards Convocation

Sunday, March 22, 2020

1:00 P.M. – Illinois Tech– Hermann Hall Auditorium

Pledge of Allegiance

National Anthem

Greetings..... **Carrie Kaestner**
Chairperson, CPS Student Science Fair, Inc.

Remarks..... **Dannette Porter**
*CPS Academic Competitions
Office of Teaching and Learning*
Kelli McDonald
*President, CPS Student Science Fair, Inc
Board of Directors*
Jonathan Wallace
*Ward 04, Director of Constituent Services &
Community Engagement*

Awards Presentation..... **Ruby Parnell-Booth**
*Chairperson, Special Awards and Tours
Committee*

- Special Awards
- Military Awards
- Special Tour Awards

Winners Recognized by **Kelli McDonald**
Dannette Porter
Jonathan Wallace

Symposium Winners **Jennifer Patush**
Lucy Young
*Co-Chairpersons, Symposium & Essay
Committee*

Illinois Junior Academy
of Science (IJAS) Awards **Monique Murray**
Juanita Paulinski
Co-Chairpersons, IJAS Committee

International Science and
Engineering FAIR (ISEF) Awards..... **Carrie Kaestner**
Chairperson, CPS Student Science Fair, Inc.
Closing Remarks **Carrie Kaestner**
*Chairperson, CPS Student Science Fair,
Inc.*





Special Awards

A variety of incentives are provided by individuals, industry, educational organizations and professional societies. The contributors listed below and their representatives serving as judges, have donated cash awards, certificates of merit, gift cards, invitations to attend special recognition programs, luncheons and opportunities in real laboratory settings. Some Special Award sponsors have dedicated special recognition to the Teacher Sponsors that encourage these exhibitors to stretch to reach their potential.

At the Awards Convocation on Sunday, March 15, 2020, students whose projects are selected by Special Awards judges will be the direct recipients of these awards.

If you are interested in offering a Special Award at the next Exhibition of Student STEM Research, please contact Ruby Sheree Parnell-Booth Special Awards, P.O. Box 803945, Chicago, IL 60680 or by email at rsparnell-booth@cps.edu

On behalf of all the young scientists, a special THANK YOU is extended to the contributors of Special Awards.

Achievement Award

A \$50 cash award will be given to a first time high school student exhibitor with an outstanding project

- Rita Nelson
- RyAnn Nelson -Jaiyesimii

AKArama Foundation Award

Theta Omega Chapter

Alpha Kappa Alpha Sorority, Inc.

A \$100 cash award will be given to each of two female student exhibitors with outstanding projects.

- Veletta Bell

American Meteorological Society

A certificate of "Outstanding Achievement" to each of two high school student exhibitors with outstanding projects in the category of atmospheric, oceanic or hydrologic science

- Society for Science and the Public

American Nuclear Society-Chicago Section

One \$100 cash award and a book by Max Carbon will be given to a student exhibitor with an "Outstanding" project; one \$50 cash award and a book by Max Carbon will be given to a student exhibitor with an "Excellent" project

- Dr. Roger W. Tillbrook

American Psychological Association

A certificate of "Outstanding Research" will be given to a student exhibitor with an outstanding project in behavioral science, biochemistry, computer science, environmental science, mathematical science, medicine or health science.

- Society for Science and the Public

Anti-Cruelty Society

A \$50 Visa gift card will be given to a student exhibitor with an outstanding project exhibiting humane care and treatment of animals

- Steve Weaver

ASM Materials Education Foundation

A ribbon and certificate of outstanding achievement will be given to a student exhibitor with an outstanding project in the category of engineering

- Society for Science and the Public

Association for Women Geoscientists

A certificate of "outstanding achievement" will be given to a female student exhibitor with an outstanding project that increases the public awareness of the geosciences, illustrate the interdisciplinary nature of the geosciences, or promote the sensitivity to the Earth as a global system.

- Society for Science and the Public

Bartley Family Award

A \$50 gift card will be given to each of two student exhibitors with outstanding projects

- Jeanette Bartley

Broadcom MASTERS

A special invitation for the top 10% of middle school student exhibitors to be nominees for the Science & Engineering Fair national competition

- Society for Science and the Public

Charms, Inc. - Chicago Chapter

A \$50 gift card will be given to one female high school student exhibitor and one female elementary school student exhibitor with outstanding projects

- Jackie Sharp
- Judy Walter
- Ruby Sheree Parnell-Booth

Chicago Academy of Sciences and its Peggy Notebaert Nature Museum

A One-year Family Membership to the Peggy Notebaert Nature Museum (\$60 value) and a \$50 Visa gift card to one middle school and one high school student with an outstanding environmental science project

- David Bild



Special Awards

Chicago Alumnae Chapter Delta Sigma Theta Sorority, Inc.

A \$100 cash award will be given to a high school female student exhibitor with an outstanding project. A \$50 cash award will be given to a middle school female student exhibitor with an outstanding project.

- Cathy Jo Walker Murray

Chicago Intellectual Property Alliance (CIPA)

Three "Most Inventive" awards: First place - assistance with filing a patent application and a \$500 cash award; Second place - a \$300 cash award; Third place - a \$200 cash award

- Sarah Biggs

Chicago Principals and Administrators Association

A \$50 Target gift card to each of five high school student exhibitors and to each of five elementary school student exhibitors in behavioral science, biochemistry, chemistry, environmental science, mathematics or microbiology.

- Kent Lau

Chicago STLE/ANGUS hemical Company

A \$100 cash award will be given to each of four student exhibitors that have outstanding projects

- Soraya Kraszczyk

Chicago Zoological Society-Brookfield Zoo

A one year Brookfield Zoo family membership will be given to each of ten student exhibitors with outstanding projects in animal welfare and/or environmental conservation.

- Paul Gooding

Christine M. Krupa Award

A \$100 cash award will be given to a student exhibitor with an outstanding mathematics project

- Christine M. Krupa

College of Engineering, University of Illinois at Chicago (MC 152)

A \$250 cash award will be given to each of five student exhibitors with outstanding projects in the category of engineering

- Dr. Peter Nelson, Dean
- Dale Reed
- Gerry Smith

Copper's Encouragement Award

A \$50 gift card will be given to each of two female high school student exhibitors with "outstanding" projects in health science and a \$25 gift card will be given to a female high school student exhibitor with "excellent" projects in health science

- Elizabeth Copper

Cynthia Slater Insurance Agency

A \$50 cash award will be given to a student exhibitor with an outstanding project

- Cynthia Slater

Davis Family Achievement Award

A \$25 gift card will be given to each of six student exhibitors with outstanding projects

- Lillian B. Qualls
- Lois McClinton
- Jacqueline Johnson
- Nichelle Mazique
- Ruby Sheree Parnell-Booth

Delta Kappa Gamma Sorority Alpha Delta Chapter

One \$100 cash award to a high school female student exhibitor with an outstanding project.

- Dr. Patricia Mizerka

Denise Michelle Gamble Award

A \$50 cash award will be given to each of ten middle school students that have outstanding projects in STEM research.

- Denise Michelle Gamble

DNA Learning Center-Notre Dame

A fully paid scholarship for a one week session to DNA Learning Center Summer Camp located at the University of Notre Dame (tuition, lab fees, room and board, meals and camp activities) for one of the following dates for summer 2020: June 21 – June 26, July 5 – July 10, or July 12 - 17, 2020 for a student with an outstanding project.

- Dr. Amy Stark

Ezell and Edna Smith Award

A \$150 cash award will be given to each of two student exhibitors with outstanding projects related to food or plant life.

- Leonard Smith

Federal Managers Association Chapter 375 EPA Chicago

A \$100 gift card will be given to each of three student exhibitors with outstanding projects

- Ken Westlake

Fogelson Family Foundation- Paul J. Salley, Jr. Prize for Outstanding Mathematical Research by a Young Mathematician

A \$433 Paul J. Salley, Jr. cash award will be given to a student exhibitor with outstanding work of research in mathematics

- The Fogelson Family Foundation

Fogelson Family Foundation-Outstanding Teacher in Mathematics and Related Sciences

A \$349 Fogelson Family Foundation cash award will be given to an outstanding mathematics and related sciences teacher

- The Fogelson Family Foundation



Special Awards

Fogelson Family Foundation- Outstanding School or Team in Mathematics and related Sciences

A \$401 Fogleson Family Foundation cash award will be given to a school or team which supported the most math/related sciences projects that entered the City STEM Exhibition

- The Fogelson Family Foundation

Fogelson Family Foundation- QED Prizes for Outstanding Research in Mathematics and Related Sciences

A \$331 QED cash award will be given to each of two student exhibitors for outstanding works of research in Pure Mathematics, Applied Mathematics, Mathematics in Engineering, and Mathematics in Computer-Related Sciences, and to a work demonstrating exceptional mathematical insight.

- The Fogelson Family Foundation

Fogelson Family Foundation- Distinguished Mathematics Research

A \$281 Fogelson Family Foundation cash award will be given to each of two student exhibitors for distinguished mathematical research.

- The Fogelson Family Foundation

Fogelson Family Foundation- Special Awards for Mathematical Investigations or application

A \$157 Fogelson Family Foundation cash award will be given to each of two student exhibitors for outstanding mathematical investigations or application project

- The Fogelson Family Foundation

Gerald Rudnick Award

A \$50 cash award will be given to a student exhibitor with an outstanding project in technology.

- Gerald Rudnick

Gonzalezles, Wahlberg, James, Gonzalezles Award

A \$100 cash award will be given to four middle school student exhibitors that best use the scientific method in their exhibits

- Eddie Marie Gonzalezles

IJAS

An accommodation for each of the top 60 student exhibitors and each of the top 15 symposium presenters to attend the IJAS State Exposition

- Monique Murray
- Juanita "Nini" Paulinski

IJAS Essay Finalists

A \$250 cash award will be given to each of the top two essays; a \$125 cash award will be given to the third place essay; a \$75 cash award will be given to the fourth place essay; and a \$50 cash award will be given to the fifth place essay

- CPS Student Science Fair, Inc.

Illinois Speech-Language-Hearing Association

A \$100 cash award will be given to each of two student exhibitors with outstanding projects related to communication disorders

- Bryan White

Intel ISEF

A trip to the International Science and Engineering Fair for each of four high school student exhibitors with outstanding projects; Recognition of each of two alternates

- CPS Student Science Fair, Inc.

Language Empowers All People (LEAP)

A four hour speech and language coaching scholarship will be given to each of four student exhibitors with outstanding projects.

- Gregory Moses

Lemelson Early Inventor Prize

A \$100 cash award and certificate will be given to a middle school student exhibitor whose project best demonstrates an invention creating a promising solution to real-world problems.

- Society for Science and the Public

Luba Johnson Science Award

A \$50 cash award will be given to each of two student exhibitors with outstanding projects

- Luba Johnson

Metropolitan Water Reclamation District of Greater Chicago (MWRD) Recognizes Student Research in Water

A t-shirt, certificate and letter with a personal invitation for participation in the MWRD's annual open house at one of the water reclamation plants on Saturday, May 16, 2020 will be given to a student with an outstanding water-related research or design project.

- Metropolitan Water Reclamation District of Greater Chicago (MWRD)

Mu Alpha Theta

A certificate of "outstanding achievement" will be given to a high school student exhibitor that creatively using modern mathematics

- Society for Science and the Public

NASA

A certificate of "outstanding achievement" will be given to a student exhibitor whose project offers the greatest insight into Earth's interconnected systems

- Society for Science and the Public

National Oceanic & Atmospheric Administration

A certificate and letter of congratulations will be given to a student exhibitor whose research best emphasizes prediction of changes in climate, weather, oceans, and coasts

- Society for Science and the Public



Special Awards

National Technical Association

A \$50 cash award will be given to an outstanding student exhibitor

- Melvin Slater
- Cynthia Slater

Optical Society of Chicago

A \$75 cash award will be given to a student exhibitor with an outstanding project about and/or using optics.

- George Magerl

Ricoh Sustainable Development Award

A certificate of “outstanding achievement” will be given to a student exhibitor that best reflects the principles of sustainability - balancing economic development with environmental responsibility

- Society for Science and the Public

Science Merit Award

A \$50 cash award will be given to a student exhibitor with an outstanding project in behavioral science, botany, microbiology, environmental science, health science, chemistry or physics.

- Rita Nelson
- RyAnn Nelson -Jaiyesimi

Slater Association

One \$50 cash award will be given to an outstanding exhibitor

- Melvin Slater
- Cynthia Slater

Society for In Vitro Biology

A certificate of “outstanding achievement” will be given to an 11th grade student exhibitor with an outstanding project exhibiting plant or animal invitro biology or tissue culture

- Society for Science and the Public

Stella A. Muir Environmental Science Award

A \$100 cash award will be given to a student exhibitor with an outstanding project in environmental science. Stella A. Muir

Stockholm Junior Water Prize

A certificate will be given to each of three high school student exhibitors that have outstanding water related exhibits; eligibility to participate in the Stockholm Junior Water State Competition

Society for Science and the Public

Symposium Award

Cash awards to symposium participants: \$250 first place; \$125 second place; \$75 third place; \$50 fourth place; eleven participation awards of \$25

- CPS Student Science Fair, Inc.

Teach Our Children, Inc. - Tyron K. Smith Award

One \$100 cash award will be given to a student exhibitor with an outstanding project in electronics

- Tracy Raoul

The National Sorority of Phi Delta Kappa, Inc.

A \$50 cash award will be given to each of two student exhibitors with outstanding projects

- Shannette Rooks

United States Agency for International Development USAID

A certificate and social media toolkit will be given to a student exhibitor with an outstanding project that impacts and addresses international development challenges.

- Society for Science and the Public

United States Air Force

A certificate for “outstanding achievement” will be given to a student exhibitor that has an outstanding project in aerodynamics.

- Society for Science and the Public

United States Metric Association

A certificate for “outstanding achievement” will be given to a student exhibitor that has an outstanding project in which the measures were integrally important to the research

- Society for Science and the Public

United States Navy and Marine Corps Office of Naval Research

A letter of congratulations, certificate of achievement and a medallion to 3 exemplary middle school exhibitors; A letter of congratulations, certificate of achievement, a medallion and a redeemable recognition award (\$50 gift card) for 4 exemplary high school exhibitors

- Society for Science and the Public

Honeywell UOP

A \$200 cash award will be given to each of two student exhibitors with outstanding projects; A \$100 cash award will be given to each of four student exhibitors with excellent projects; A \$50 cash award will be given to each of eight student exhibitors with projects that are honorable mention.

- Willie Morrisette

West Ridge Citizen Science Center

A \$50 cash award will be given to each of four student exhibitors with outstanding projects

- Gary Morrissey



Special Awards

Wolfram Research, Inc. Award

First Place Prize, (Wolfram One: cloud-desktop hybrid, integrated computation platform for data modeling, publishing and API and much more), will be awarded to a student exhibitor from each of the sixteen categories with an outstanding project. Second Place Prize, (Wolfram Alpha Pro: upload your own data and images for analysis, create customized interactive visuals and much more), will be awarded to a student exhibitor from each of the sixteen categories with an excellent project.

- Carol Cronin

Yale Science & Engineering Association

A certificate of "outstanding achievement" will be given to an 11th grade student exhibitor with an out-

standing project in the category of Computer Science, Engineering, Physics, or Chemistry

- Society for Science and the Public

Yolanda Del Rio 6th Grade Recognition Gift

A McDonald's gift card will be given to each 6th grade student participant that attends the 6th Grade Luncheon at the City Science Fair.

- Yolanda Del Rio

Young Scientist Award

A \$50 cash award will be given to a high school student exhibitor with outstanding research endeavors in biochemistry, health science, microbiology or zoology.

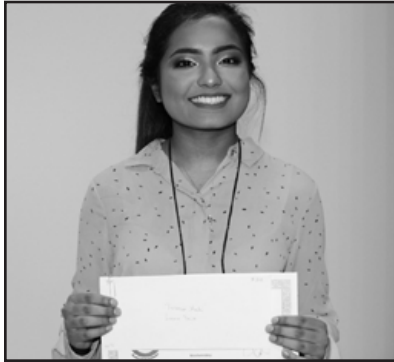
- Rita Nelson
- RyAnn Nelson -Jaiyesimi





Special Awards 2019

2020 AWARDS





CPS Student STEM Exhibition Special Programs

Research Grants – money for student research

Mini-grants are available to students in Grades 7 through 12 for the purpose of providing financial aid while conducting research projects. Students may apply for renewable grants of up to \$100 per semester. These funds may be used for the purchase of materials and equipment not available in their schools, but which are needed to complete the student's experimental research. Students may apply to the Research Grants Committee of CPS Student Science Fair, Inc.

Maxi-grants are awarded to students in Grades 9 through 12 and provide financial support in amounts of \$100–\$500. This grant is available to students who have already demonstrated excellence in STEM projects and need more expensive materials and equipment to continue their research. Students must apply to the Research Grants Committee of CPS Student STEM Fair, Inc. and, if accepted, must submit their work to members of this committee. An application can be found in the current *STEM Exhibition Handbook* and on the Internet at: cpsstemfair.org.

Advise-a-Student – professional advice for student research

The Advise-a-Student program is designed to provide technical advice to students in Grades 7 through 12 who are working on a research project. Advice is available only after students exhaust school resources and have thoroughly researched their topic in the library. In order to discuss and obtain assistance in improving their projects, students must apply for a research advisor by submitting an application to the Advise-A-Student Committee of CPS Student Science Fair, Inc. An application can be found in the current *STEM Exhibition Handbook* and on the Internet at: cpsstemfair.org.

STEM Exhibition Central – workshops for student research

Northeastern Illinois University (NEIU) opened labs in their science buildings on Saturday morning this past September and invited high school and elementary school students, teachers, parents, and

mentors to the campus. NEIU provided professional scientists, including university faculty and staff, to advise and assist the students. In some cases, lab set-up space and materials were made available. Details regarding these workshops are sent to teachers at the beginning of the school year.

STEM Clubs – after school help from teachers for student research

ComEd, An Exelon Company has continued to provide funding for 20 high school STEM clubs this school year. The primary objective is to compensate teacher-sponsors for guiding students as they developed STEM Exhibition projects. Club sponsors receive supply money for materials and/or equipment for conducting club activities. Peoples Gas provided funding for 15 middle school STEM clubs this school year. In addition to stipends, teachers could help students collect data by using Vernier *LabQuest* and *LEGO Robotics*, which brought more technology into the classroom. These clubs also have engineers from Peoples Gas who volunteer to advise club members on their STEM research.

Scholarships – college funds for STEM Exhibition alumni

In order to support the CPS Exhibition of Student STEM Research and to encourage students to consider careers in STEM, several local universities have provided renewable tuition waiver scholarships. In addition, monetary contributions from various sources in the business community have been volunteered as well as solicited to provide additional scholarships. Any prospective Chicago public high school graduate who has participated in at least one STEM Exhibition (during Grades 7–12) at the regional or city level and/or the symposium is eligible to apply for a scholarship. The Scholarship Committee, comprising STEM Exhibition representatives, business and education, selects scholarship recipients based on participation in the Chicago Public Schools STEM Exhibitions, scholastic achievement, future goals, and personal interviews. Since 1956, CPS Student Science Fair Inc. has awarded 2,157 scholarships valued at \$3.9 million to students from 77 Chicago public high schools.



2019 Scholarship Winners

Any prospective June CPS high school graduate who has participated in CPS STEM exhibitions (during grades 7-12) at a regional or the city level and/or the symposium/essay competition; and who is planning to major in science, technology, engineering, and/or mathematics was eligible to apply for a scholarship. The Scholarship Committee, representing business and education, selects scholarship recipients on the basis of participation in the Chicago Public Schools STEM Exhibitions, scholastic achievement, future goals, and personal interviews.

The June 2019 high school graduates listed below were selected to receive financial scholarships by the Chicago Public Schools Student Science Fair, Inc. Scholarship Committee.

Since 1956, Student Science Fair, Inc. has awarded 2,157 scholarships, valued at \$3,901,492 to students from 77 Chicago public high schools



Uzair Ahmed/LakeView
University of Illinois at Chicago
Aerospace Engineering
ComEd, An Exelon Company
Scholarship, \$3,000



Victoria Bush/Brooks
DePaul University
Biology
Depaul University Tuition
Waiver, 4-year Renewable,
\$8,000/year



Juan Chavira/Amundsen
Illinois State University
Computer Science
Kenneth Zdunek & Mary
Memhardt Scholarship (\$1,500)
and CPS Student Science Fair,
Inc. (\$500), \$2,000 Total



Brycen Cousins/Lindblom
University of Michigan
Data Science
Barbara Bulmash Memorial
Scholarship (\$1,000) and CPS
Student Science Fair, Inc.
(\$1,500), \$2,500 Total



Kristina Fiedler/Lane Tech
University of Wisconsin-
Madison
Environmental Science
CPS Student Science Fair, Inc.,
\$1,500



Hazel Rose Galvan/Von
Steuben
Gettysburg College
Chemical Engineering
VelocityEHS. Scholarship
(\$3,000) and CPS Student
Science Fair, Inc. (\$3,000),
\$6,000 Total



Natalia Goral/Amundsen
Jagiellonian University
Earth Science
CPS Student Science Fair, Inc.,
\$4,000



Lillian Jirousek/Payton
Northwestern University
Math and Physics
CPS Student Science Fair, Inc.,
\$2,000



Abhishek Joshi/Lane Tech
University Wisconsin-Madison
Biology
Allen Nelson Memorial
Scholarship (\$2,000) and CPS
Student Science Fair, Inc.
(\$1,000), \$3,000 Total



Ivory Marquez/Von Steuben
Dickinson College
Environmental Science
Kolver Family Foundation
Scholarship (\$1,000) and CPS
Student Science Fair, Inc.
(\$1,000), \$2,000 Total



Cristian Molina/Lincoln Park
University of Chicago
STEM Related Field
University of Chicago Tuition
Waiver, 4-year Renewable,
\$2,000/year



Stoykof Nunez/Phoenix Military
United States Military Academy
at West Point
Electrical Engineering
Harold Keihm Memorial
Scholarship (\$3,000) and CPS
Student Science Fair, Inc.
(\$4,000), \$7,000 Total



Mercy Oladipo/Young
Massachusetts Institute of
Technology
Bioengineering
Dolores Rosenbaum Memorial
Scholarship (\$4,000) and CPS
Student Science Fair, Inc.
(\$4,000),
\$8,000 Total



Jeffrey Ren/Phoenix Military
Northern Illinois University
Aerospace
BP America Inc. Scholarship
(\$3,000) and CPS Student
Science Fair, Inc. (\$1,000),
\$4,000 Total



Kristine Schoenecker/
CHSAS
University of Illinois at Urbana-
Champaign
Environmental Science
University of Illinois at Urbana-
Champaign Tuition Waiver,
4-year Renewable \$2,000/year



Robert Szymczyk/Lane Tech
Northwestern University
Civil & Environmental
Engineering
Motorola Foundation
Scholarship (\$3,000) and CPS
Student Science Fair, Inc.
(\$1,000), \$4,000 Total



Tanzanikia Taylor/Michele
Clark
Trinity College
Computer Science
Geri Blakley Memorial
Scholarship (\$1,000) and CPS
Student Science Fair, Inc.
(\$1,500), \$2,500 Total



Valerie Villanueva/Lane
Tech
Illinois Wesleyan University
Design Technology
Charles Lange Memorial
Scholarship, \$1,500



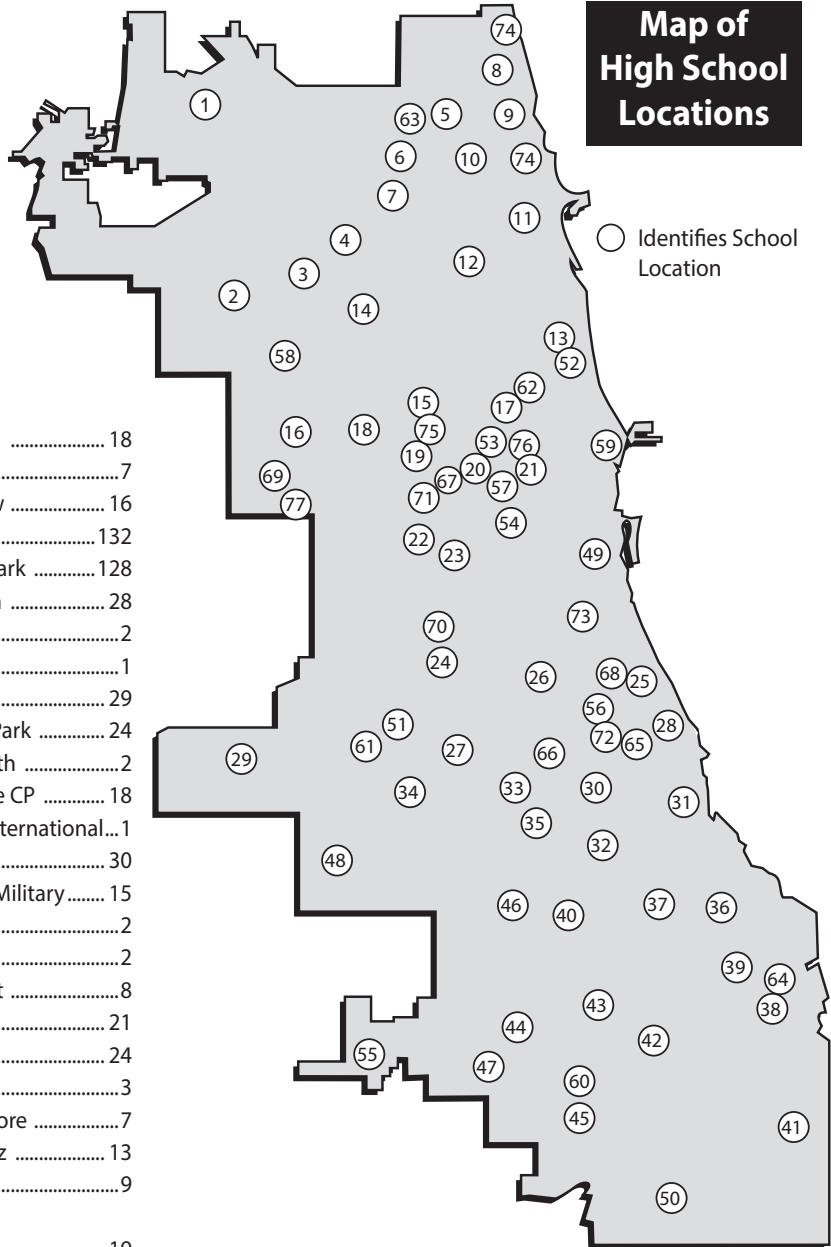
Number of Scholarships Awarded (1956 – 2019)

Map no. School Scholarships

73 Air Force Academy	1	28 Kenwood	18
10 Amundsen	45	25 King CP	7
16 Austin	8	11 Lake View	16
64 BEST	1	12 Lane	132
57 Best Practice	1	13 Lincoln Park	128
48 Bogan	28	33 Lindblom	28
38 Bowen	15	19 Marshall	2
68 Bronzeville.....	1	71 Manley	1
60 Brooks	4	05 Mather	29
46 Calumet	4	47 Morgan Park	24
50 Carver	6	52 Near North	2
69 Chicago Academy	1	63 Northside CP	18
55 Chicago Ag. Sci.....	55	76 Ogden International... 1	
74 Chicago Math and Science Academy.....	1	62 Payton	30
39 Chicago Voc.	7	67 Phoenix Military	15
77 Clark.....	1	58 Prosser	2
15 Clemente	1	32 Robeson	2
42 Corliss	11	07 Roosevelt	8
20 Crane	1	04 Schurz	21
53 Cregier	2	09 Senn	24
51 Curie	20	40 Simeon	3
49 Dunbar	1	36 South Shore	7
56 DuSable	3	02 Steinmetz	13
65 Dyett	1	08 Sullivan	9
30 Englewood	4	01 Taft 22	
22 Farragut	4	26 Tilden	19
45 Fenger	14	06 Von Steuben	65
18 Flower	1	41 Washington	30
03 Foreman	24	17 Wells	7
27 Gage Park	4	75 Westinghouse	1
61 Hancock	4	21 Whitney Young	55
43 Harlan	5	72 Williams Medical.....	2
35 Harper	4	70 World Language	2
23 Harrison	4		
37 Hirsch	5		
66 Hope	3		
34 Hubbard	18		
31 Hyde Park	16		
59 Jones	5		
Map no.School Scholarships			
54 Juarez.....	8		
44 Julian	12		
24 Kelly	11		
14 Kelvyn Park	14		
29 Kennedy	15		

Map of High School Locations

○ Identifies School Location





ComEd High School STEM Club Program 2019-2020

The following high schools have approved after-school STEM clubs sponsored by ComEd, An Exelon Company. Each club is provided with a stipend for the club sponsor and receives supply funds to help support the Science Club. The primary objective of the ComEd Science Club Program is to provide extended STEM experiences and guidance to students interested in developing STEM research projects.

Amundsen

Eman Sarhan

Brooks

Aurora Tyagi

Carver Military

Onome Alabi

Curie

Neshell Graham

Englewood STEM

Ayesha Crockett

Juarez

Patricia Sullivan

Lane Tech

Lucy Young

Marine Leadership**Academy**

Monica Gomez

Payton

Walter Kinderman

Von Steuben

Carrie Kaestner





Peoples Gas Middle School Science Club Program-2019-2020

The following elementary schools have approved after-school STEM clubs sponsored by Peoples Gas and some Peoples Gas STEM Clubs supplemented by CPS Student Science Fair, Inc.. Each club was provided with a stipend for the club sponsor. Materials used during club sessions include incorporating Vernier LabQuest in collecting data for analysis and using Vernier Engineering Projects with LEGO Mindstorms Ed EV3. This year Peoples Gas Clubs also received Material Science Kits donated by The Ceramic and Glass Industry Foundation. These kits were created to introduce young people to the world of ceramic and glass materials. The kit is appropriate for 7th-12th grade students and older and introduces students to the basic classes of materials (ceramics, glass, composites, metals, and polymers) through fun and interactive lessons. Giving students the knowledge and experience of using STEM helps to inspire ideas for independent research projects. Peoples Gas engineers volunteered to lend their expertise to club members on their projects. The primary objectives of the Peoples Gas STEM Club Program were to provide guidance to students interested in developing STEM Exhibition projects and using LabQuest for data collection

Beasley

Felecia Jones

CICS -Wrightwood

Ebony Blair

Coonley

Xavier Loza

Dever

Andrew Bean

Earle STEM

Luevinia Morgan

Foster Park

Michelle D. Bullock

Garvey

Tonia Thomas

Gallsitel Lang. Acad.

Tisha Grudzien

Haugan

Shannon Sankstone

Healy

Pauline Swenson

Hughes

Tracy Sevier

Kilmer

Zijada Cobovic

Mt. Vernon

Yolanda Pender-Bey

Owen Scholastic

Shevinna Sims

Owens Community

Davina Allen

Saucedo

Rosario Canizales

Schmid Elementary

Janice Coleman-Mathus

Shoesmith Elementary

Margaret Hoover

Ward STEM

Francine Harris

Zapata Academy

Monica Rutkowski

Eliza Ramirez

Peoples Gas Engineers

Luis M. Alvarez

Christopher Marquez

Yolanda Del Real

Erin Carlson

James Fischer

Joseph Hall

Alberto Jara

Marcia M. Lewis

Jacqueline E. Montero

Rino J. Muringothu

Rabees Rafiq

Benjamin Rosenberg

Maribelle Trujillo

Mary H. Houpt

Manager, Community

Partnerships

Charles W. Graham

*Director | Operations &
Maintenance | Peoples Gas*

Kyle Frayn, P.E.

Manager, Transmission

Engineering | Gas Engineering





STEM Exhibition Volunteers

On the following pages are the pictures and names of hundreds of people who give of their own time and of themselves to make the CPS Exhibition of Student STEM Research possible. **THANK YOU!**



THANK YOU



Faces of the Student STEM Exhibition



THANK YOU



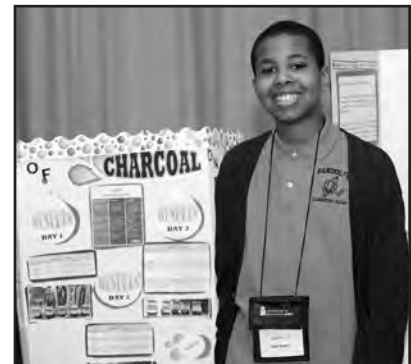
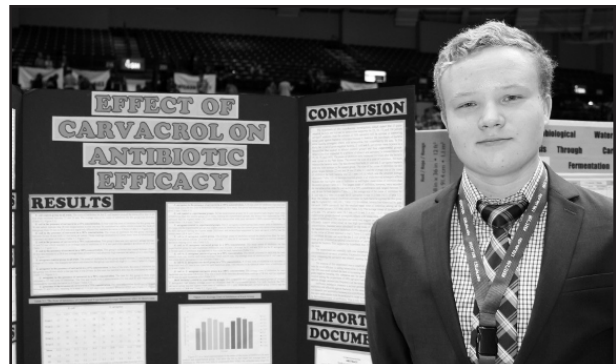
Faces of the Student STEM Exhibition



THANK YOU



Faces of the Student STEM Exhibition



THANK YOU



Exhibit Judges

Each year approximately 300 judges from the scientific, academic, and business communities generously donate their time, effort, and expertise to objectively and professionally evaluate the most scientifically talented students from the Chicago Public Schools. Student STEM Exhibition honors judges who have served for a minimum of five years and on every fifth anniversary. Judges receiving a plaque for service are invited to a special Recognition Luncheon which will be held after judging is completed.

Student STEM Exhibition salutes ALL the Exhibit Judges participating in the 69th Exhibition of Student STEM Research.

Thank you and congratulations for a job well done!

Fathimunissa Ali

Syed W. Ali
ComEd

Larry Alofs

Roberto Arroyo
Peoples Gas

Sriramya Ayyagari
University of Illinois Chicago

Alan Babjak
Koppers, Inc.

Lionello Bardina
Navistar

Bilal Batroukh
T-Mobile, USA

Brian Beatty
Beatty & Associates, Inc.

Albana Bega
Environmental Protection Agency

James Belcastro
Douglas Machine

David Benjaih
Northeastern Illinois University

Sergio Bertolini
Exelon Corporation

David Bild
Xaptum, Inc.

Pat Billing-Medel

Alexis Billingslea
National Society of Black Engineers-

Rebecca Bograd
Burns & McDonnell

Ramona Boies
Navistar

Ramona Boles
Navistar

Cyrus Bracey
Federal Aviation Administration

Ann Brandon

Pat Bridges
Peoples Gas

Michael Brocksmit
Peoples Gas

Syretta Brown
Northeastern Illinois University

Carol Burck
Loyola University

Brenda B. Calfin

Mark Camp
Becht Engineering

Dan Carlson
BP

Leia carlson
University of St. Francis

Bill Carroll
Peoples Gas

Cesar Castillo
BP

Bill Charvat
Peoples Gas

Leela Chikoti
Lurie Childrens Hospital

Brenda Coleman
Floristic Arts

CyntKaille Coleman
EGB

Justin G. Coughlin
U S Environmental Protection Agency

James Covello

Ernest Crafton
Peoples Gas

Brent Curry
U. S. Army

Edward Davis
Nokia

Victoria Denenberg

Samone Dicks
T-Mobile, USA

Charles Dobrovolsky

Michael Dominik
BP

Ronald Dudek

Rhonda Dugan
Chicago Foundation for Education

John Dworak
Jadco, Inc.

Charles T. Elly

Chuck Elly
The University of Chicago

William Enowmbitang
Navistar

Antoinette Evans
Pivotal Home Solutions

Barry Finkel

Stephanie M. Flynn
Daubert Chemical Company

Peter Fong
J. P. Morgan Chase

James Foster
Educational GameWorks, LLC

James Friel
CSG Government Solutions

Michael Gabino
Peoples Gas

Jose O. Garza

THANK YOU



Exhibit Judges

Norman Gelfand
Fermilab

Christopher Gerhard
BP

Victor Gonzales
Mobile

Jami Gray
Burns & McDonnell

Kathleen Grecco
Burnes & McDonnell

Paul Gregoire, P.E.
Globtrotters Engineering Corporation

Jessica Harre
Sargent & Lundy LLC

Kelsey Hedlund
USA Media

Kurt Hedlund
ARRIS-Retired

Gordon Henderson

Steven E. Hill
Metropolitan Water Reclamation District

Theresa O. Hill

Lananh Ho
Peoples Gas

Janet Holmgren
BP

Andrew Hubbell
Citgo Petroleum

Jason Hyland
Synergy Capital Management

Kristine Johnson
Marketing Professional Services

Paul Johnson
BP

Krishna Joshi

Michelle Joyce
BP

Jim Julion
Jardine Water Plant

Pat Jurczewski
Peoples Gas

Melissa Marie Kaczmarczyk
PepsiCo

Joseph Kaczmariski
Invenergy LLC

Karen Kaikaris

Hareet Kaikini
ComEd

Ernest Kaminski

Medina kazimi
Oakton Community College

Matthew Keeshin
BP

Demetra Kimecik-Deligiannis
Col. USAF MC Ret

William King

Rachel Knopp
University of Illinois at Chicago

Colton Knox
Peoples Gas

Nelson Koopman

Dorothy Kramer

Mark Kruse
Peoples Gas

Jainender Kumar
SAP America

Gerald Labedz
High Performance Computing Advisors, Inc.

James Lamb
Peoples Gas

Cutler Lewandowski
University of Illinois-Chicago

Sihui Ma
The University of Illinois at Urbana-Champaign

Brian Martin
Peoples Gas

Moises Martinez
BP

Diane R. Martini
Burns & McDonnell

Steven H. Mason
MIC LLC

James Massuci
Peoples Gas

Lindsey Mateja
Navistar

Lisa McCune
Baxter Healthcare

Steve McVeigh

Robert Michalowski

Koppers, Inc.

Christopher Miller
Northwestern University/Ryan Lab

Dave Miller
St. Joseph High School

Julie Minbiole Ph.D.
Columbia College Chicago

Heather Minges Wols Ph.D.
Columbia College Chicago

Christopher Lee Moffatt
Green Sand Software

Melanie Moore
Environmentalist of Color

John Moraga
Baxter Healthcare Corporation

Jessica Morgan

Donald A. Morrison
University of Illinois at Chicago

Stephanie H. Moy
Chicago Exotics Animal Hospital

Deborah A. Murphy - Bittner
DXC Technologies

Miles Narducy
ComEd

Thao Nguyen
Obrava Corporation

Patrick Nolan
Navistar

Tito Olguin
Peoples Gas

Juanita Olmos
Peoples Gas

Chidi C Osuji
Zebra Technologies

Marianne Palczewski
University of Illinois at Chicago

Heta Panchal
Peoples Gas

Sid Panjwani
Direct Path Partners

THANK YOU



Exhibit Judges

George Papadakis
North Shore Gas Company

Denise Patrick
Chicago State University

Oliver Pergams
Olive-Harvey College

Jason R. Pickard
AtmoSci, LLC

Michael Pickard
Micro Paraphernalia

Rheta Pickard

Christina Pila
T-Mobile, USA

Harold Primack

Marile Quintana
University of Illinois

Rebecca Ralph
Navistar

Richard A. Rikoski Ph.D., P.E.
Technical Analysis Corp.

Timothy G. Rodney
BP America LLC

Diana Rodriguez
University of Illinois at Urbana-Champaign: College of ACES

Nel J. Rodriguez
Burns & McDonnell

Brian Rogers

Ben Rosenberg
Peoples Gas

Bara Sarraj, Ph.D., QCYM
Harold Washington College

Stephen Schade
AIChE

John Schaller

William C. Schu

Joseph Schuler

Lauren Schultz
North Shore Oncology-Hematology

Topher Schultz
U. S. Cellular Corporation

MaryAnne Schuster-Korkut

Jonathan J. Schweizer
U S Environmental Protection Agency

Nora Seidman
Koppers, Inc.

Steven Shosey
T-Mobile, USA

Anna Simon
BP

Kornelia J Skowron
University of Illinois at Chicago

Shannon Smith
Tempus

Ronald Spatzek

Robert F. Stegmann

Ken Steichmann
ComEd

Stutler
Rand R. Networks and Engineering

Ericka Stutler
BP

Stephen K. Tahir
Abbott Laboratories

Joseph Tassone
Peoples Gas

Jesse Thompson
University of Illinois

Joseph Tijerina
J. P. Morgan Chase

Joseph Tijerina
Peoples Gas

Madeleine Turk
Burns & McDonnell

Jodie M. Ulaszek
Illinois Tech-

Kanchan Vardhe
T-Mobile, USA

Adam Veres
BP-U.S. Pipelines & Logistics

Margaret Verre
Quincy Wells

Przemyslaw Shemek Walczak
Peoples Gas

Myles W. Wallace

Sharon Waller
Sustainable Systems LLC

Ethan Warncke
BP

Carol A. Westbrook

Ronald S Wideman
ComEd

Mark Wilson
T-Mobile, USA

Jacqueline Witherspoon
Olive-Harvey College

Fred J. Wittenberg
Envimech

Patricia Wontroba

Julia P. Wozniak
EA Engineering, Science and Technology, Inc. PBC

Charlie Yang
Rosalind Franklin University of Medicine and Science

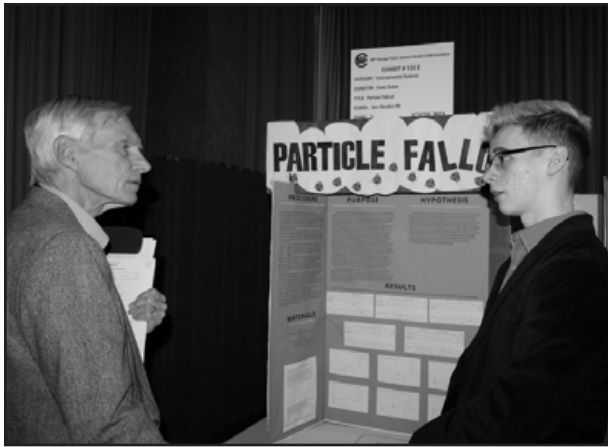
Jonathan Yong Zhi Zhou
Sunrise Futures, LLC

Christopher Zachara
Koppers, Inc.

THANK YOU



Exhibit Judges



THANK YOU



Symposium Readers and Judges

The following individuals, in addition to the Symposium Committee, generously volunteered their time and expertise on Saturday, January 25, 2020 to read research and essay papers submitted for evaluation.

Thank you, Symposium Readers!

Carol Burck
Rosario Canizales
Roy Coleman
Yolanda Del Rio
Jaqueline DiLorenzo
Erin Faulkner
Margaret Farr

Stephen Farr
Andy Garcia
Neshell Graham
Carlos Guerrero
Ethelene Hare
Josemanuel
Hernandez

Patrick Higgins
Carrie Kaestner
Susan Kocot
Les Lynn
Stella Muir
Sussan Oladipo
Jennifer Patush

Sara Phelan
R.A. Rosenstein
Eman Sarhan
Saadiqa Thompson
Sandra Tobias
Dianna Uchida
Lucy Young

Symposium Judges

The following scientists and engineers volunteered their time and expertise on Thursday, March 19, 2020 to act on a panel of judges to select the finalists who will participate in the Illinois Junior Academy of Science Symposium.

Erica Budina
University of Chicago

Cynthia Colquitt
U.S. EPA

Alyssa Colyette
Motorola Solutions

Ronald Dudek
Retired Engineer

Newton Ellens
U.S. EPA

Robert Garnes
Zebra Technologies

Jimmie Julion Jr.
*Chicago Dept. of Water
Management*

Les Lynn Argument
Centered Education

Brittany Maki
*Scientific Control
Laboratories, Inc.*

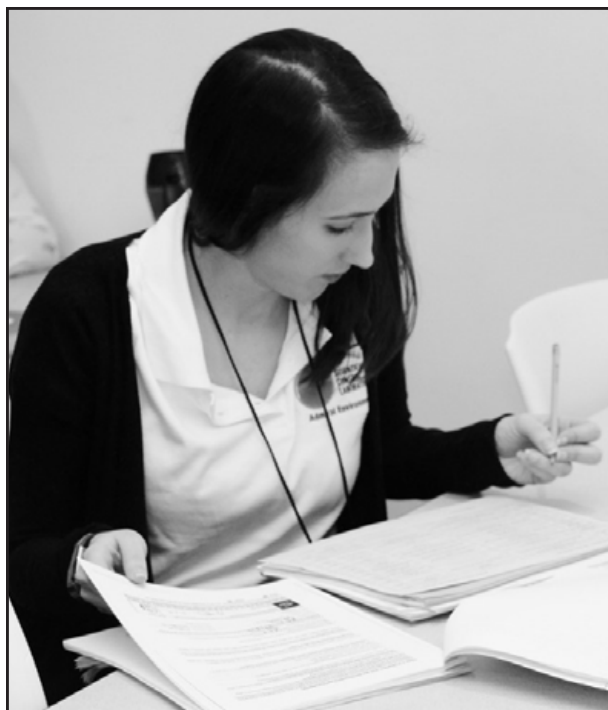
Russell J. Martin, P.E.
USEPA, retired

Kirill Shmilovich
University of Chicago

Noel Vargas
U.S. EPA

Terri J. Wilson
U.S. EPA

Alina Wong
Motorola Solutions



THANK YOU



Administrative Officers/Operating Committees

The City Exhibition of Student STEM Research would not be possible were it not for the effort of the dedicated CPS employees and retirees who give days and weeks of their time and have done so for years. They invest their time behind the scenes preparing an event and supporting programs for the purpose of fostering STEM education, encouraging students to engage in independent research and providing those students a public forum to present their work.

City Exhibition of Student STEM Research Officers

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Elizabeth Copper

Lindblom

Chairperson

Carrie Kaestner

Von Steuben HS

Chairperson-Elect

Jacqueline Di Lorenzo

Hubbard

Secretary

Yolanda Del Rio

CPS, retired

Treasurer

Luba Johnson

CPS, retired

2nd Treasurer

Rita Nelson

UIC

Advise-a-Student

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Elizabeth Copper

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Arrangements

Chairperson

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CPS, retire

Rosario Canizales

Saucedo

Yolanda Del Rio

CPS, retired

Patricia Gaines

CPS, retired

Liz Jones

CPS, retired

Maxine Jordan

CPS, retired

Naeem Karriem

Leland

Lauren Levites

Lindblom

Carolyn McBride

CPS, retired

Stella Muir

CPS, retired

Patricia Parsons

CPS, retired

Eva Pitts

CPS, retired

Ronald Richardson

CPS, retired

Clemente Rodriguez

Retired, Law Enforcement

Raymond Rodriguez

UIC

Rosemary Smith

CPS, retired

Sandra Tobias

Phoenix

Thomas Unger

Kelvyn Park

Michael Williams

Clark, M

Communications

Chairperson

Luba Johnson

CPS, retired

Roy Coleman

CPS, retired

Yolanda Del Rio

CPS, retired

Allan Reisberg

CPS, retired

Computer Programming

Chairperson

Roy Coleman

CPS, retired

Data Entry

Chairperson

Yolanda Del Rio

CPS, retired

Luba Johnson

CPS, retired

Digital Imaging

Roy Coleman

CPS, retired

Dianna Uchida

CPS, retired

Deshaun Adams

He Shoots Lyfe Photography

Credentials

Chairperson

Luba Johnson

CPS, retired

Exhibits

Manager

Donald Rankins

Anthony Lukas

Chicago Park District

Johnathan Lukas

Zackary Lukas



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IL Junior Academy of Science (State Science Fair)

Co-Chairperson

Monique Murray
Morrill

Co-Chairperson

Juanita (Nini) Paulinski
CPS, retired

Yolanda Del Rio
CPS, retired

Neshell Graham
Curie

Elizabeth Copper
Lindblom

Kaitlyn Echols
Olive Harvey

Raymond Rodriguez
UIC

International Science & Engineering Fair

Chairperson

Carrie Kaestner
Von Steuben

Stephen Farr

Margaret Farr
Hancock

Jacqueline DiLorenzo
Hubbard

Lauren Levites
Lindblom

Saswati Koya
Chicago Academy

Pam Moy
Friend of CSSF

Judging

Co-Chairperson

Debra Sutkowski
Astellas

Co-Chairperson

Ed Scanlon
CPS, retired

Nicholas Charmelo
Sayre

Roy Coleman
CPS, retired

Yolanda Del Rio
CPS, retired

Luba Johnson
CPS, retired

Dan Martin
CHSAS

Patricia Mizerka
CPS, retired

Dianna Uchida
CPS, retired

Nominating

Chairperson

Elizabeth Copper
Lindblom

Roy Coleman
CPS, retired

Ethelene Hare
CPS, retired

Luba Johnson
CPS, retired

Rita Nelson
UIC

Parent Outreach

Chairperson

Tracy Raoul
University of Chicago

Luba Johnson
CPS, retired

Publications

Chairperson

Luba Johnson
CPS, retired

Roy Coleman
CPS, retired

Yolanda Del Rio
CPS, retired

Jenny Sarva
Achieve

Allan Reisberg
CPS, retired

Tom Schrey
Artmark Graphics

Publicity

Chairperson

Debra Sutkowski
Astellas

Luba Johnson
CPS, retired

Research Grants

Chairperson

Luba Johnson
CPS, Retired

Elizabeth Copper
Lindblom

Safety

Chairperson

Pamela Sims-Little
CPS, Retired

Noreen Aderman
Healy

Tonia Humphrey
FAA, retired

Luba Johnson
CPS, retired

Castelia Milet
CPS, retired

Latanya Waters
Parker

Lisa Lester
FAA, retired

Ora Poole
Palatine, retired

Roslyn Scott
COS, retired

Cynthia Simmons
Parker

Rochelle Wren
ComEd, retired

Scholarships

Chairperson

Jenny Sarna
Achieve

THANK YOU



Administrative Officers/Operating Committees

Univ. Scholarship Liaison

Dianna Uchida

CPS, retired

Roy Coleman

CPS, retired

Yolanda Del Rio

CPS, retired

Ethelene Hare

CPS, retired

Luba Johnson

CPS, retired

Glennie King

Bogan

Rita Nelson

UIC

Allan Reisberg

CPS, retired

Henry Rosenbaum

CPS, retired

Scientific Review

Chairperson

Jodie Ulaszek

Illinois Tech

Jeanette Bartley

University of Chicago

Rosario Canizales

Saucedo

Luba Johnson

CPS, retired

Vyjayanti Joshi

Lake View

Pamela Sims-Little

CPS, retired

Jennifer Patush

Curie

Stephanie Moy

Veterinarian – Chicago Exotics, P.C.

Special Awards

Chairperson

R. Sheree Parnell-Booth

Mollison

Glasetta Barksdale

Malcolm X College

Jeanette Bartley

Elizabeth Copper

Lindblom

Jacqueline Johnson

USPO, retired

Adele Jones

Mollison

Nichelle Mazique

Chicago South Suburbs

Lois McClinton

CPS, retired

Lillian Qualls

CPS, retired

Gerald Rudnick

CPS, retired

Symposium & Essay

Co-Chairperson

Jennifer Patush

Curie

Co-Chairperson

Lucy Young

Lane

Stephen Farr

Hancock

Jacqueline DiLorenzo

Hubbard

Andrew Garcia

Curie

Neshell Graham

Curie

Yolanda Del Rio

CPS, Retired

Rebecca Patush

Plainfield Central HS



THANK YOU



Regional STEM Exhibition Committee

Many thanks go to the Regional Networks STEM Exhibition Chairpersons and their Committees. These groups of teachers contribute their time and effort to create successful Regional Network Student STEM Exhibitions throughout the city, serving all CPS and Charter schools. The committees may include teachers, lead science teachers and STEM Coordinators from participating schools. Their efforts to insure a successful Regional STEM Exhibitions is greatly appreciated. Though the focus of the event is on students' projects, these events succeed due to the care and attention to detail of those people working on arrangements, credentials, exhibits, judging and safety committees. This year the nine Regional Networks STEM Exhibitions were grouped by schools closest to the hosting site.

AVI - Elementary

Chairperson

Nikki Brown

Parker

**Bartlomiej
Pienkowski**

Columbus

Tolulope Sosola

Frazier International

Aisha Wade-Bey

Lawndale

Darneshia Mitchell

Lawndale

Keith Raickett

Mason

Cheryl Zelinski

Nobel

Stephanie Brown

Providence Englewood

IL Tech - Elementary

Co-Chairperson

LaTanya Waters

Parker Community

Co-Chairperson

Cynthia Simmons

Parker Community

Kathleen

Lewandowski

Burroughs

Beth West

Columbia Explorers

Smitha Mather

Drake

Luvenia Morgan

Jacqueline Taylor

Earle STEM

Sarah Boyd

Healy

**Erika Wallace-
Thurman**

Holmes

Kathleen Doyle

Lenart

Ronald Berdell

Pershing

LaVoris Howard

Turner Drew

Robyn Katz

Galileo

Felicia Williams-

Narcisse

Hendricks

Caitlin Bonham

Kenwood

Ruby Parnell-Booth

Mollison

Arleta Ingram

Murray

Eulette Harris

Ogden International

Lynnette Millner

Randolph

Shelia Washington-

Lane

Shields Middle

Margaret Hoover

Shoesmith

Kristen Polotsky

Skinner North

Michelle Danelley

Wacker

Cynthia Brawner

Wadsworth STEM

Lynne Muhammad

Young HS

Daley - Elementary

Chairperson

Nicole Mulcrone

Lee

Rita Leary

Ashburn

Erin Roberts

Byrne

Christine Pawelec

Carson

Elaine Cloney

Cassell

Martha Irizarry

Edwards

Kathleen Molenhouse

Keller

Darnella Wesley

Kellogg

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The Annual Chicago Public Schools Exhibition of Student STEM Research represents one of the best syntheses of the city's business and educational communities. The not-profit CPS Student Science Fair, Inc. is a coalition of current and retired public school teachers and administrators. They coordinate this yearly showcase with the aid of the aforementioned Chicago Public Schools Office of Teaching and Learning, Illinois Tech (Illinois Institute of Technology), and this year's corporate sponsors, BP American Inc., Chicago Public Schools, ComEd, An Exelon Company, Motorola Solutions Foundation and Peoples Gas, as well as many other individual donors.

In addition to our corporate, academic and site sponsors, contributors, committees and judges there are many others whose support must be acknowledged. We wish to express our sincere appreciation to the following individuals and organizations for their invaluable contributions to the 2020 CPS Exhibition of Student STEM Research.

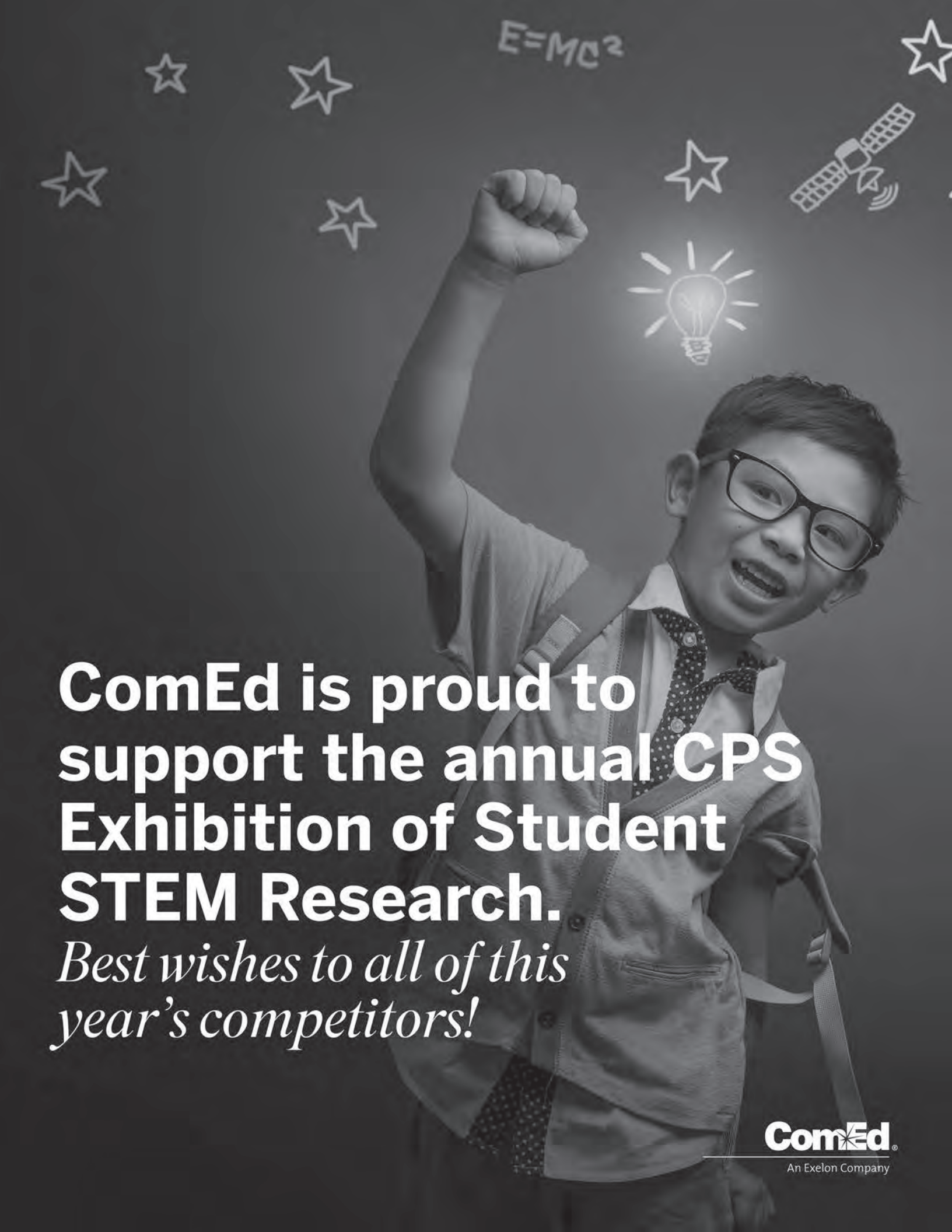
Illinois Tech (Illinois Institute of Technology) is our new site host for the 2020 Citywide Exhibition of Student STEM Research (Student Science Fair). We thank the Illinois Tech staff for working with us in making this transition. We look forward to a successful STEM Exhibition at our new site.

- The students who worked so diligently to develop the outstanding research and displays presented at this event
- The parents, teachers, and other adults who inspired the Young HS people in various aspects of their projects
- The professors, engineers, scientists, and mathematicians who volunteered their services to help students develop their research

- Faculty and administrative personnel who organized the school STEM Exhibitions which give students their first opportunity to present their research to judges
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- The Ceramic and Glass Industry Foundation for providing Material Science Kits to promote STEM experimentation during Peoples Gas Club sessions
- Phoenix Military Academy High School JROTC cadets for serving as Color Guard at the Opening Ceremony and Awards Program.

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