

2023 PROGRAM BOOK

73rd ANNUAL CPS Exhibition of Student Research
CHICAGO PUBLIC SCHOOLS STUDENT SCIENCE FAIR, INC

Powering Infinite Explorations



2023 EXHIBITION OF STUDENT STEM RESEARCH
Illinois Tech, March 16- 18, 2023
Symposium Presentations, March 16, 2023
STEM EXHIBITION PROGRAM BOOK



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In Memory of Luba Johnson

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Schedule of Events

Thursday, March 16, 2023- Symposium- Details on page 9

8: 30 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 <i>Guest speaker Brian Derrow of Zebra Technologies</i>
1:00 p.m.- 3: 30 p.m.	Symposium Afternoon Sessions (Rooms: HH 002, HH 003, & HH 010)

Thursday, March 16, 2023- Project Setup - Details on page 10

8:00 A.M. — 12:00 P.M	Middle School Setup (Hermann Hall Ballroom)
12:00 P.M. - 4:00 P.M	High School Setup (Hermann Hall Ballroom)

Friday, March 17, 2023- Exhibit Judging - Details on page 11

7: 15 A.M. - 8:00 A.M.	Judges Breakfast (Alumni Hall)
8:00 A.M.- 8: 30 A.M	Judges Briefing (Alumni Hall)
8: 30 A.M — 12:00 P.M	Judging of Exhibits (Hermann Hall Ballroom/Gallery) <ul style="list-style-type: none"> Academic, Special awards, ISEF
12:00 P.M. — 1:00 P.M	Lunch for all students in Hermann Hall Expo Judges lunch Hermann Hall Expo/Alumni Room ISEF judges lunch in Hermann Hall Room
1: 00 P.M — 3: 00 P.M	Judging of Exhibits continued (Hermann Hall
2: 00 P.M.- 3: 00 P.M	Ballroom) Open to the Public
3: 30 P.M. — 4: 00	PROJECTS ARE TAKEN DOWN

Saturday, March 18, 2023 Awards Ceremony

1:00 P.M. — 3.00 P.M.	Awards Ceremony (Hermann Hall- Auditorium) by ticket only
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2021-22 CPS Exhibition of Student STEM Research

Symposium



Projects





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

Prior to the 2020-2021 Pandemic, more than 8,000 students enter projects, beginning at the local school level. Local school winners exhibit at the regional level. This 2022-2023 school year, there were over 307 students from 70 schools who competed their local science fair. The 3rd Annual Virtual Regional Science Fair. 260 winners from 8 Regional STEM Exhibition of Student Research was held February 23, 2023. There are 240 students participating in the 73rd Annual CPS Exhibition of Student STEM Research will be IN PERSON from May 16-18, 2023_ 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 50 projects 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 April 28 and 29, 2023 at Southern Illinois University (SIU) in Carbondale, 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 Dallas, Texas on May 13-19, 2023.

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 Coordinators, 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. People Gas & Energy and ConiEd, and Illinois Tech are this year's corporate sponsors.

How You Can Help

To help the CPS Student STEM Exhibition and encourage 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, 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 cpsscifair.org

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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 was essential in helping us obtain the necessary support of local business and industry, and whose 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. These costs include goods and services, publications, scholarships and grants, support to regional exhibitions and the city exhibition, and participation at the Illinois Junior Academy of Science State Science Fair and the International Science and Engineering Fair.
- 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.

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



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 past Exhibition of Student STEM Research successes.

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 Institute of Technology

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

- Baxter International, Inc.
- Illinois Tool Works
- Roy Coleman & Dianna Uchida

Angels - \$1,000 Minimum

- The Chicago Community Foundation
- Anonymous
- Kenneth Zdunek & Mary Memhardt
- S & C Electric Company

Patrons - \$500 Minimum Donors - \$100 Minimum

- Ethelene Hare
- Rudy Joan Lubov
- Stella Muir
- Morton Suggestions
- Naylor Pipe Company
- Henry Rosenbaum

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 Institute of Technology
- 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

Angels - \$1,000 Minimum

- BP America, Inc.
- Kovler Family Foundation
- Chicago Intellectual Property Alliance
- ComEd, An Exelon Company
- The Fogelson Family Foundation

- Marilyn Levin
- Henry Rosenbaum
- Motorola Solutions Foundation
- MSD Online, Inc.
- UIC-College of Engineering
- University of Notre Dame
- Kenneth Zdunek & Mary Memhardt

Patrons - \$500 Minimum

- Beth Lange
- Omega Psi Phi Fraternity, Inc.- IOTA Chapter

Donors - \$200 Minimum

- Active Office Solutions
- Chicago Section STLE
- Anthony Crowe
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- Joanne Gray
- IL Speech-Language-Hearing Association

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- Robert Lange
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- Rita Nelson
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Friends – \$100 Minimum

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- Vincent Brown
- Elizabeth Copper
- David Gilligan
- Luba Johnson
- Christine Krupa
- Stephen McVeigh
- National Sorority of PDK
- Tracy Raoul

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.



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 16, 2023, takes place at Illinois Tech in Hermann Hall's lower level. Student presenters from Grades 9-12, through their teacher sponsor, first submit a scientific research paper. In January/February, a committee of volunteer readers evaluated these papers, and these research papers were chosen to be presented on March 16, 2023. 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 Southern Illinois University in Carbondale, Illinois on April 28 and April 29, 2023.

Name	Ex#	Type	Grade Category	School	NTWK
Yumou Lu	601 E	Experimental	10 Behavioral	Lane Tech College Prep	14
Leena Harb	602 E	Experimental	12 Biochemistry	Lincoln Park High School	14
Amanda Lee	603 E	Experimental	12 Biochemistry	Lincoln Park High School	14
Akosua Haynes	604 E	Experimental	10 Botany	Walter Payton College Prep	15
Lisa Patel	605 E	Experimental	12 Chemistry	Amundsen High School	14
Indigo Wall	606 E	Experimental	9 Chemistry	Lane Tech College Prep	14
Patrick Conlon	607D	Design	12 Computer	Walter Payton College Prep	15
Rishi Sandrana	608 D	Design	11 Computer	Walter Payton College Prep	15
Nikita Agrawal	609 D	Design	11 Earth Science	Whitney Young High School	15
Sofia Weber	610 E	Experimental	11 Earth Science	Northside College Prep	14
Aiden Nabhani	611 E	Experimental	9 Electronics	Amundsen High School	14
Ian Vargas	612 E	Experimental	11 Electronics	Von Steuben MSC	14
Grier Burke	613 D	Design	10 Engineering	Lane Tech College Prep	14
Sydney Curran	614 D	Design	12 Engineering	Lane Tech College Prep	14
Ethan Hui	615 E	Experimental	9 Engineering	Lane Tech College Prep	14
Divinefavour Osuji	616 D	Design	10 Engineering	Lane Tech College Prep	14
Sydney Cooner	617 E	Experimental	11 Environmental	Lane Tech College Prep	14
Julian Olszewski	618 E	Experimental	12 Environmental	Lane Tech College Prep	14
Landra Ream	619 E	Experimental	10 Environmental	Lane Tech College Prep	14

Continued

Matilda Burgess	620 E	Experimental	10 Health Science	Amundsen High School	14
Maya Joshi	621 D	Design	12 Health Science	Walter Payton College Prep	15
Lydia Schieleit	622 E	Experimental	12 Health Science	Northside College Prep	14
Nayana Shah	623 E	Experimental	10 Health Science	Lane Tech College Prep	14
Zhouqi Shao	624 E	Experimental	11 Health Science	Whitney Young High School	15
Ritvik Viniak	625 D	Design	12 Health Science	Walter Payton College Prep	15
William Xu	626 E	Experimental	11 Health Science	Walter Payton College Prep	15
Bogdan Felix Jones	627D/M	Design/Math	9 Mathematics	Whitney Young High School	15
Makayla Ayala	628 E	Experimental	10 Microbiology	Lane Tech College Prep	14
Griffin Stofko	629 E	Experimental	10 Microbiology	Lane Tech College Prep	14
Karina Vargas	630 E	Experimental	11 Microbiology	Lane Tech College Prep	14
Maddox Hemenover	631 E	Experimental	9 Physics	Amundsen High School	14
Chloe Toporek	632 E	Experimental	10 Physics	Amundsen High School	14
Diart Metarapi	633 E	Experimental	10 Zoology	Lane Tech College Prep	14

Essay Contest

IJAS Essay Contest

Also evaluated by volunteer readers during January/February Symposium & Essay virtual reading sessions are the essays. As an ancillary activity of the State Science Fair, the IJAS sponsors an essay contest for students, Grades 7-12, who conduct library research and prepare a 1500-word essay. The 2023 prompt is: What on Earth? *It's Our Turn To Lead*. Five top student essays will be forwarded to the IJAS for evaluation at the state level.

2023 Essay Contest Semi-Finalists

First name	Grade	Title	School	Network
Pedro Arteaga	12	Chicago's Garbage Disposal	Hubbard High School	16
Lisette Juarez	12	Solar Variability in Climate Change	Hubbard High School	16
Juan Ortega	12	The Battle with Global Climate Change	Hubbard High School	16
Alyssa Ponce	12	Climate Change is Preventable	Hubbard High School	16
Saatvik Viniak	7	Issues with T1D Treatment Accessibility	Lane Academic Center	14



Thursday, March 16, 2023 High School Symposium Presentation Day 8:30 a.m. until 3:30p.m.

ALL PARTICIPANTS must dress professionally. This does **not** include jeans, sweatshirts, t-shirts, shorts, or mini-skirts and/or halter-tops. This is a professional occasion. Professional attire is expected.

Morning session presenters arrive at Illinois Tech-Hermann Hall by 8:30 a.m. and Go To Station #1. Sign in and obtain your ID Badge and Badge Holder, and then go to Illinois Tech — Alumni Lounge.

Symposium Luncheon with Guest Speaker, Brian Derrow of Zebra Technologies.

Afternoon session presenters will arrive at the Illinois Tech — by 11:00 p.m. and Go To Station #1. Sign in and obtain your ID Badge and Badge Holder, and then go to Illinois Tech — Alumni Lounge.





2023 CPS Student STEM Exhibition



Ex#	Student Name	Grade	Project Title	Type*	School
Aerospace					
1	Jiale Xu	7	Drag on Planes	E	Haines Elementary
2	Alaina Valmassei	10	Ef of Wing Planform on Stall Angle	E	Lane Tech College Prep
3	Henry Bao	11	Airfoil Design w/Comp Fluid Dynamics	D	WalterPayton
4	Zayd Mjzoub	12	Inlet Cone Drag	E	Jones College Prep
Behavioral Science					
5	Violet Bramley	7	Does Color affect Taste?	E	Mary Gage Peterson Elementary School
6	Josephine Herbstman	7	Ef of Breathing Techniques on Stress	E	Burley School
7	Srishti Jassal	7	Reading Online vs Reading Paper	E	Skinner North Classical
7	Gweniveve Zoldan	7	Reading Online vs Reading Paper	E	Skinner North Classical
8	Georgia Nevotti	7	How Does Food Color Taste	E	Waters Elementary
9	Audrey Tinley	7	Music, Does It Help or Hurt	E	Ted Lenart Regional Gifted Center
10	Addison Davis	8	Do Different Genres Music Memory	E	Skinner North Classical School
11	Lucinda DeMaio	8	Does Age Affect Gullibility	E	Waters Elementary
12	Norah Robinson	8	Eyewitness Testimonies	E	Gary Comer Middle School
13	Yumou Lu	10	Ef of Tone on Placebo Effect	E	Lane Tech College Prep
14	Sophia Veranga	10	Ef of Tone on Placebo Effect	E	Lane Tech College Prep
Biochemistry					
15	John (Jack) Willow	7	What Moisturizer Best Moisturizing Skin	E	Skinner North Classical School
16	Khiana Harvey	8	Do Dif Liquids Affect Plant Growth	E	Grissom Elementary School
17	Jimena Hernandez	8	Can Mints Improve Reaction Time	E	West Park STEAM School
17	Armani Rivera	8	Can Mints Improve Reaction Time	E	West Park STEAM School
18	Itzel Montes	8	What Beverage Stains Teeth	E	West Park STEAM School
18	Nely Antunez	8	What Beverage Stains Teeth	E	West Park STEAM School
19	Sofia Pena	8	Battle of Percentages	E	Josephine C. Locke Elementary
20	Nora McGuire	10	Effect of Cooking on Vitamin C Depletion	E	Chicago Agriculture
Botany					
21	Sofia Casales	7	What Can Help Roses Stay Fresh	E	Keller Elementary
22	Cathal Deppeler	7	Which Music Affects Growth of Plants	E	Solomon Elementary
23	Natalia Reyes	7	Flower Gleam & Glow	E	Burroughs Elementary
24	Maya Talos	7	Which Type of Water Is Best For Plants	E	Solomon Elementary
25	Francesca Avila	8	Ef of Rabbit Diet Plant Fertilizer	E	Decatur Classical School
26	Isabel Harris	8	Plants & Light Color	E	Budlong School
27	Riley Richardson	8	Petal Pigments	E	Audubon
28	Daniela	8	Plants on Acid Rain	E	Haugan Elementary
29	Akosua Haynes	10	Effect of Salinization on Plant Growth	E	Walter Payton
30	Annika Hutcheson	10	Water Sources & Resultant Plant Growth	E	Amundsen High School
31	Mikayla Foertsch	12	Radiated Radishes	E	Chicago Agriculture
Chemistry					
32	Nathan Allen	7	The Breakdown	E	Ruggles S.T.E.A.M. Elementary School
33	Rubina Bachcha	7	Do pH Level Change With Temperature	E	Palmer Elementary
34	Isabella Blankenberger	7	"A Real Pain in the Acid"	E	William Howard Taft Academic Center
35	Cara Daniels	7	Salty Antibubbles	E	Franklin Fine Arts Center
36	Jayleen Marin	7	Which Coffee Stains Teeth	E	West Park STEAM School
36	Sophia Saustegui	7	Which Coffee Stains Teeth	E	West Park STEAM School
37	Vedika Patel	7	Ef of Dye on Different Fabrics	E	OA Thorp
38	Nevaeh Dotson	8	Whitening Toothpaste vs Regular	E	Gary Comer Middle School
39	Hanna Florczak	8	To Rust or Not to Rust	E	OA Thorp
39	Viviana Vargas	8	To Rust or Not to Rust	E	OA Thorp
40	Robert Foote	8	Which Fruit Contains The Most Sugar	E	Arthur Dixon Elementary
41	Gabrielle Gardner	8	Temperature Was the Case	E	Arthur Dixon Elementary
42	Beatrice Hirsch	8	Spherification	E	Beaubien Elementary
43	Tracey Huynh	8	Acid Catalysis	E	Beaubien Elementary
44	Filip Kwiaowski	8	Leaner Meaner Greener	E	OA Thorp
44	Jonathan Slota	8	Leaner Meaner Greener	E	OA Thorp

Chemistry Continued

* E-Experimental D-Design
M-Mathematics



2023 CPS Student STEM Exhibition



Ex#	Student Name	Grade	Project Title	Type*	School
45	Yvonne Liang	8	How Does Sugar Affect pH Levels	E	Ted Lenart Regional Gifted Center
46	Thomas Lynch	8	Effect of Location on Lead	E	Ebinger School
47	Laura Miranda	8	Chilling Chewing	E	Budlong School
48	Suhaima Patel	8	Does Candle Color Affect Burn Rate	E	Palmer Elementary
49	Taylor Quach	8	What Type Flour Yields Cupcakes	E	Palmer Elementary
50	Allison Ramirez	8	How Acidic Are Common Drinks	E	West Park STEAM School
50	Mariana Tolayo	8	How Acidic Are Common Drinks	E	West Park STEAM School
51	Zadie Rocke	8	Sugar Creates Rock Candy	E	Ted Lenart Regional Gifted Center
52	Yuliana Rojas	8	Does Temp Effect Luminol's Glow	E	Byrne School
52	Chelsea Tyrala	8	Does Temp Effect Luminol's Glow	E	Byrne School
53	Sydney Rosen	8	Contrasting Cookies	E	Chicago World Language
54	Elijah Sawyers	8	What's In Your Water	E	Gillepsie Tech Magnet
55	Steffany Shvartshteyn	8	What Lotion Works Best	E	Franklin Fine Arts Center
55	Helen Karafiol	8	What Lotion Works Best	E	Franklin Fine Arts Center
56	My Tran	8	Acid Water	E	McPherson Elementary
57	Noah Wilson	8	The Great Bake Off	E	Audubon
58	Rin Kleinman	9	Chemical Reaction in Slime	E	Amundsen High School
59	Khadijat Ismaila	11	Salt or No Salt?	E	Von Steuben MSC
60	Lisa Patel	12	Effectiveness Indigestion Medicines	E	Amundsen High School
Computer Science					
61	Felix Higgins	7	The Connection	E	Franklin Fine Arts Center
62	Rishi Sandrana	11	Predicting Real-End Collisions	D	Walter Payton
63	Patrick Conlon	12	Machine Learnng AI Recycling	D	Walter Payton
Earth Science					
64	Lily Royer	7	PPM in The River	E	William Howard Taft Academic Center
65	Symone Harden	8	Do Storm Drains Keep Water Trash Free	E	Ted Lenart Regional Gifted Center
66	Hayley Zelaya	8	Does Light Affect Crystal Growth	E	Palmer Elementary
67	Nikita Agrawal	11	ML Model To Predict WildFire Burned Areas	E	Whitney Young
68	Sofia Weber	11	Regional Variation in Wind Impact on Sea Ice	E	Northside College Prep
Electronics					
69	Brandon Swan	7	Battery Energy	D	Gillepsie Tech Magnet
70	Bianca Verdin	10	Energy Efficient Walking Robot	D	Lane Tech College Prep
71	Ian Vargas	11	Disabled Door Device	D	Von Steuben MSC
Engineering Science					
72	Rico Collins	7	Catapult	E	Wadsworth STEM
73	Henry Everett	7	Windy Bricks	E	William Howard Taft Academic Center
74	Adeline O'Donnell	7	Fabulous Folder	D	Audubon
74	Vivian Whittle	7	Fabulous Folder	D	Audubon
75	Nevaeha White	7	Grasping with Straws	D	Shoop Math, Science & Technology
76	Madilyn Dugan	8	No-Slip Spoon Grip	D	McDade Classical
76	Tahilia Robinson	8	No-Slip Spoon Grip	D	McDade Classical
77	Jack Faye	8	Solar Tracker vs Stationary	E	Burley School
78	Katrina Jiang	8	Let There Be Light	D	Franklin Fine Arts Center
78	Lexi Short	8	Let There Be Light	D	Franklin Fine Arts Center
79	Johnny Martinez	8	Project Hand	E	Saucedo Scholastic Academy
79	Camilo Valerio	8	Project Hand	E	Saucedo Scholastic Academy
80	Finnegan McMahon	8	Which Type House Resistant To Hurricane Winds	D	Burley School
81	Yusra Talaty	8	Escaping the Heat	D	Mary Gage Peterson Elementary School
81	Julieta Moreno	8	Escaping the Heat	D	Mary Gage Peterson Elementary School
82	Izaith Aguero	10	Digital Stethoscope Records Heart Beats	D	Lane Tech College Prep
83	Divinefavour Osuji	10	Autonomous Tech Drones & Detection	D	Lane Tech College Prep
84	Sydney Curran	12	RFID Smart Toy	D	Lane Tech College Prep

* E-Experimental D-Design
M-Mathematics



2023 CPS Student STEM Exhibition



Ex#	Student Name	Grade	Project Title	Type*	School
Environmental Science					
85	Clare (Cal) Tolleson-	7	Microbial Fuel Cells	E	Decatur Classical School
86	Sienna Vazquez	7	Effect of Porous Pavement Reducing Runoff	E	Decatur Classical School
87	Catherine Zacks	7	Run Away Carbon	E	William Howard Taft Academic Center
88	Neena Agrawal	8	Removing Phosphate from Chgo River	E	Skinner North Classical
89	Oluwakemi Ekundayo	8	Eco-ship	D	Amelia Earhart
90	Luis Gonzalez	8	The Situation of Evaporation	E	McPherson Elementary
91	Kathleen Lah	8	Is the Northwest Side of Chicago Water Safe	E	Ebinger School
92	Elizabeth Tunney	8	Which Water Filtration Method Is Best	E	Solomon Elementary
92	Yasmina Hadzic	8	Which Water Filtration Method Is Best	E	Solomon Elementary
93	Syncere Williams	10	Which Filtration Material Is Best	E	Robert A. Black Magnet
94	Alexander Czempinski	10	Effect of Time on Restored Biodiversity	E	Lane Tech College Prep
95	Landra Ream	10	Effect of A. Indica on Soil pH & Plant Growth	E	Lane Tech College Prep
96	Ella Schieleit	10	PFAS Concentration Illinois Water Systems	E	Northside College Prep
Health Science					
97	Lucille Rieger	8	Does Eye Color Affect Your Peripheral Vision	E	Waters Elementary
98	Darreanna Benjamin	8	Bad 2 The Bone	E	McPherson Elementary
99	Sophia Fisher	8	Testing The Effects of Blood Thinners	E	Newberry Math & Science Academy
100	Hailey Griffin	8	Liquids & Electrolytes	E	Gillespie Tech Magnet
101	Samuel Jaimes	8	Lung Capacity Test	E	Newberry Math & Science Academy
Health Science Continued					
102	Eleanor Manalo	8	What Is In Your Water?	E	Beaubien Elementary
102	Oriana Yousif	8	What Is In Your Water?	E	Beaubien Elementary
103	Madelyn Ramirez-	8	Does Amt of NaCitrate Interfere Spherification	E	Byrne School
104	Zoe Stewart	8	Music & Heart Rate	E	Newberry Math & Science Academy
105	Anaya Joshi	9	Prevention/Screening For Eating Disorders	D	Walter Payton
106	Yayra Tamatekou	9	Electronic Artificial Pancreas	D	Lindblom Math & Science Academy
107	Matilda Burgess	10	Angiotensin Genotypes & COVID-19 Syptoms	E	Amundsen High School
108	Katelyn Norris	11	What Type Of Water Has pH Closest Neutral	E	Chicago Agriculture
109	Zhouqi Shao	11	Transcriptome Changes In Cells Of COVID Patient	E	Whitney Young
110	William Xu	11	Influence Of COVID Pandemic H. Pylori Prev	E	Walter Payton
111	Wylan Harris	12	Does Social Media Affect Heart Rate	E	Carver Military Academy
112	Lydia Schieleit	12	Association Income, Air Quality, & Asthma	E	Northside College Prep
113	Maya Joshi	12	mPOC/hydroxyapatite Bone Regeneration	D	Walter Payton
114	Ritvik Viniak	12	A Novel siRNA Drug AML Treatment	D	Walter Payton
Material Science					
115	Mia Dell Isola	7	Portable Pocket	D	Audubon
115	Annabella Glenn	7	Portable Pocket	D	Audubon
116	Miley Flores	7	Which Brand of Paper Towel Is Most Effective	E	Columbus Elementary
116	Keyla Flores	7	Which Brand of Paper Towel Is Most Effective	E	Columbus Elementary
117	Alani Marroquin	7	Which Laundry Detergent Works	E	Palmer Elementary
118	Anais Cabrera	8	Heat It	E	McPherson Elementary
119	Ian Johnson	8	Golf Bang For Your Buck	E	Audubon
120	Richard Kattakayam	8	Best Airplane Designs For Best Flight	E	OA Thorp
120	Alexander Rainer	8	Best Airplane Designs For Best Flight	E	OA Thorp
121	Adesa Mulliqi	8	Effect of Play-doh Texture On Different Liquids	E	Budlong School
122	Malia Parker-Harris	8	Crystal Chaos	E	Wadsworth STEM
123	Sanaa Payne-Stewart	8	The PasteGuard	D	Amelia Earhart
124	Juliette Popelka	8	Effect of Liquids on Permanent Markers	E	Ebinger School
124	Molly Hardie	8	Effect of Liquid on Permanent Markers	E	Ebinger School
125	Promise Singleton	8	Ice vs Spice	E	Chicago World Language
126	Jack Sniezek	8	Effect of Different Materials Sound	E	Ebinger School
126	Michael O'Malley	8	Effect of Different Materials Sound	E	Ebinger School
127	Miya Van Patten	8	Which Material Absorbs The Most Impact	E	Burley School

* E-Experimental D-Design
M-Mathematics



2023 CPS Student STEM Exhibition



Ex#	Student Name	Grade	Project Title	Type*	School
Mathematics					
128	Darius Jones	7	Exploring Infinity via Ulam Primes	E	Whitney Young
129	Hannah Yu	7	Effect of Coin Type on Heads or Tails	M	Burley School
130	Lydia Popova	7	Designing Zig-Zag Bridges	M	Kenwood Academy
131	Nathaniel Titus	7	Expanding Game Theory	M	Whitney Young
131	Sameer Pai	7	Expanding Game Theory	M	Whitney Young
132	Rongyi Chen	7	Light- Speed Maze Solving	M	Whitney Young
132	Grant Liu	7	Light- Speed Maze Solving	M	Whitney Young
133	Aryaa Gupta	8	Peg Solitaire	M	Whitney Young
133	Annie Zhou	8	Peg Solitaire	M	Whitney Young
134	Cynthia Chen	8	An Extended Grid of Dots	M	Whitney Young
134	Rebecca Wang	8	An Extended Grid of Dots	M	Whitney Young
135	Alina Zhao	8	Moving on a Grid	M	Whitney Young
135	Max Ziegelman	8	Moving on a Grid	M	Whitney Young
136	Cyrus Di	8	Total Transformation	M	Whitney Young
136	Karl Patel	8	Total Transformation	M	Whitney Young
137	Bogdan Felix Jones	9	Gaussian Primes w/Pseudoprime Coordinate	M	Walter Payton
138	Caleb Sun	11	Inradii/Circumradii Range	M	Walter Payton
139	Ian Mann	11	Rolling Down	M	Walter Payton
140	Maggie Tsyganova	12	Radical Chess Rooks	M	Walter Payton
141	Benjamin Rothschild	12	The Digits Before Nothing	M	Walter Payton
Microbiology					
142	Lucy Kennedy	8	Effect Natural Disinfectants On Bacteria	E	Decatur Classical School
143	Griffin Stofko	10	Effect of Bisphenol A Oscillatoria sp	E	Lane Tech College Prep
Physics					
144	Chloe Toporek	10	Air Pressure & Soccer Balls	E	Amundsen High School
145	Caleb Adamji	7	How Does Color Affect Heat Absorption	E	Mary Gage Peterson Elementary School
145	Angelina Erickson	7	How Does Color Affect Heat Absorption	E	Mary Gage Peterson Elementary School
146	Elliot Bolduc	7	Height & Surface BPA	E	Decatur Classical School
147	Alyssa Diaz	7	What Will Drop First	E	Chicago World Language
148	Kyle Mak	7	Keeping It Cold	E	Keller Elementary
149	Elijah Milsap	7	Unfreeze! How Does Ice Melt	E	Ted Lenart Regional Gifted Center
150	Laith Ahmad	8	Charge Phone More Efficient	E	Byrne School
151	Christian Colvin	8	Surface Speed	E	Gillepsie Tech Magnet
152	Malia Johnson	8	Does Low Power Mode Af Charging Time Iphone	E	Arthur Dixon Elementary
153	Hector Kestler	8	Measuring Magnets Strength /Magnet Powder	E	Saucedo Scholastic Academy
154	Stephanie Liang	8	Light Distance	E	Haines Elementary
154	Karen Li	8	Light Distance	E	Haines Elementary
155	Aakifah Patel	8	Wind Turbine Designs	E	Budlong School
156	Hemani Patel	8	Light On Solar Panels	E	Newberry Math & Science Academy
157	Sofia Perez	8	Mentos and Coke	E	Saucedo Scholastic Academy
158	Mateo Wilson	8	Measuring Magnetic Field	E	Robert A. Black Magnet
159	Nevin Ye	8	Dialating Magnetic Fields	E	Haines Elementary
159	Nelson Chen	8	Dialating Magnetic Fields	E	Haines Elementary
160	Sofia Bell	9	How Does Color Affect Temperature	E	Amundsen High School
161	Jacklin Richman	9	Which Water Bottle	E	Amundsen High School
162	Jeremiah Gaitlin	11	Ef of Foreign Substance of Baseball Accuracy	E	Chicago Agriculture
163	Katherine Haran	11	Magnetic Acceleration Track	E	Chicago Agriculture
Zoology					
164	Christina Gumenyak	7	Do Different Genres of Music Afectf Cats & Dog	E	Columbus Elementary
164	Evelyn Bleidl	7	Do Different Genres of Music Afectf Cats & Dog	E	Columbus Elementary
165	Sydney Matiarena	7	Homemade vs Store Bought Incubator	E	Burroughs Elementary

* E-Experimental D-Design
M-Mathematics



2023 CPS Sixth Grade Participants

Exh #	Name	Event	Title
701	Abubakar, Fatimah	6th Grade	Power Of Music
702	Arora, Reva	6th Grade	What Chemical Reaction Produces the Most Energy
703	Blakeman, Mae	6th Grade	Does Doodling Help Us Concentrate
704	Brzakala, Alexander	6th Grade	How Much Can The Magnetic Train Hold & Still Move
705	Carter, Alexi	6th Grade	Making Boiled Eggs Float Sat Water & Sugar Water
706	Epure, Christopher	6th Grade	Water Quality Around Lake Michigan
707	Fitzgerald, Emmett	6th Grade	Growing Native Plants in Industrial Soil
708	Gallardo, Aaron	6th Grade	Effect of pH Spherification of Liquids
709	Harder, Owen	6th Grade	Familiar vs Unfamiliar Scents
710	Hilbchuck, Zoe	6th Grade	Crime Scene Chemistry
711	Ileyko, Marta	6th Grade	Marta's Airplane Army
712	Korda, Julia	6th Grade	Judging Gelato
713	Lovelace, Ariel	6th Grade	Rainwater Collection System
714	Sawyer, Payton	6th Grade	Bath Bomb Chemistry
715	Tam, Samuel	6th Grade	
716	Vega, Nevaeh	6th Grade	How Much Can The Magnetic Train Hold & Still Move
717	Wilson, Zoe	6th Grade	What Chemical Reaction Produces the Most Energy
718	Young, Ryder	6th Grade	Can Certain Liquids Make Fe Corrode Faster?



Awards Ceremony

Saturday, March 18, 2023

1:00 P.M. - Illinois Tech- Hermann Hall Auditorum

Pledge of Allegiance

National Anthem

Greetings	Carrie Kaestner Chairperson of CPS Science Fair, Inc
Welcome	Elizabeth Copper Executive Director CPS Science Fair, Inc
Remarks	Kelli Easterly Executive Director Dept of STEM at CPS Dannette Porter Office of Academic Competition, Coordinator Anthony Bartley CPSSSF, Inc. Alum, Scientific Graphic Designer Washington University, St. Louis
Awards Presentation	Ruby Parnell-Booth Chairperson of Special Awards CPSSSF, Inc
Winners Recognized	Paul Valaitis/ Baxter Board Member, CPS Science Fair, Inc
Symposium Winners.....	Lucy Young Chairperson of Symposium & Essays
Illinois Junior of Academy of Science (IJAS)	Moniques Murray Juanita Paulinski Co-Chairpersons, IJAS State
Regeneron International Science & Engineering Fair(ISEF)	Carrie Kaestner Chairperson
Closing Remarks	Elizabeth Copper Executive Director CPSSSF, Inc.

2022 Scholarship Recipients

Key
 Student's Name / School
 University
 Major
 Scholarship(s) and/or Tuition Waiver Awarded
 Total possible value



Matthew Bell/Amundsen
 Drake University
 Actuarial Science

Anthony Crowe Memorial Scholarship, \$5,000 and CPS Student Science Fair, Inc. Scholarship, \$1,000
 Total Possible \$6,000



Logan Blain/Von Steuben
 University of Illinois Urbana-Champaign
 Nuclear, Plasma and Radiological Engineering

ComEd, An Exelon Company Scholarship, \$3,000 and Barbara Bushnik Memorial Scholarship \$1,000
 Total Possible 4,000



Michael DeMastros/Amundsen
 Purdue University
 Mechanical Engineering

ComEd, An Exelon Company Scholarship, \$8,000
 Total Possible \$8,000



Sara Lopez/Lane
 University of Chicago
 Environmental Science, Molecular Engineering

Allen Nelson Memorial Scholarship, \$500 and CPS Student Science Fair, Inc. Scholarship, \$2,500
 Total Possible \$3,000



Erica Cozzani
 Northwestern University
 Biology/Environmental Science

Kovler Family Foundation Scholarship, \$1,000 and CPS Student Science Fair, Inc. Scholarship, \$1,000
 Total Possible \$2,000



Cynthia Castro/Carle
 Illinois Wesleyan University
 Psychology and Marketing

Dorothy Rosenbarm Memorial Scholarship, \$2,000 and ComEd, An Exelon Company Scholarship, \$2,000
 Total Possible \$4,000



Bader Hozek/Von Steuben
 University of Illinois Chicago
 Data Science

VelocityHS Future Leaders in Science Scholarship, \$5,000
 Total Possible \$5,000



Sofia Rodriguez/Washington
 University of Illinois Chicago
 Biology

ComEd, An Exelon Company Scholarship, \$2,000
 Total Possible \$2,000



Amer Ozankovic/Von Steuben
 University of Chicago
 Molecular Engineer

University of Chicago Tuition Waiver, 4-year Renewable, \$2,000/year and Luba Johnson Memorial Scholarship, \$2,000, and ComEd, An Exelon Company Scholarship, \$2,000
 Total Possible \$12,000



Thomas Hazin/Chicago HS
 Agricultural Sciences
 Iowa State University
 Engineering

Nancy Toomey Memorial Scholarship, \$500 and CPS Student Science Fair, Inc. Scholarship, \$2,500
 Total Possible \$3,000



Nicole Sandu/Lane
 Massachusetts Institute of Technology
 Chemistry

ComEd, An Exelon Company Scholarship, \$7,000
 Total Possible \$7,000



Hagar Soumar/Perkins
 University of Michigan Ann Arbor
 Biomedical Engineering

ComEd, An Exelon Company Scholarship, \$2,500 and Harold Kufim Memorial Scholarship, \$500
 Total Possible \$3,000



Bridget Heller/Chicago HS
 Agricultural Sciences
 University of Wisconsin Madison
 Biological Systems Engineering

T-Mobility STEM Scholarship, \$5,000
 Total Possible \$5,000



Rachel Hoffman/Lane
 University of Illinois Urbana-Champaign
 Astronomy/Astrophysics/Geology/Geography

University of Illinois Urbana-Champaign Tuition Waiver, 4-year Renewable, \$2,000/year and ComEd, An Exelon Company Scholarship, \$6,000
 Total Possible \$14,000



Jessica John/Lane
 Case Western Reserve University
 Molecular Cell Biology and Economics

ComEd, An Exelon Company Scholarship, \$2,500 and Geri Blakley Memorial Scholarship, \$500
 Total Possible \$3,000



Fatima Khan/Von Steuben
 University of Illinois Chicago Honors College
 Psychological Science

University of Illinois Chicago Full Tuition Waiver, 4-year Renewable, \$12,778/year and CPS Student Science Fair, Inc. Scholarship, \$2,000
 Total Possible \$55,122



Peoples Gas Middle School STEM Clubs

The following elementary schools have approved STEM clubs sponsored by Peoples Gas. Each club was provided with a stipend for the club sponsor. Giving students the time and support to experience research and investigations of their ideas is important. Engineers will be more available for the 2023-2024 school year to mentor students. The primary objectives of the Peoples Gas Middle School STEM Clubs were to provide guidance to students interested in developing STEM Exhibition projects.

An information meeting is held in the Fall (September/October) to provide teachers with the opportunity to participate in this program.

All students are "STEM Capable"

Students graduate with 21st century skills that enhance success in college, career, and civic life.

Byrne Elementary

Elaine Sanchez-Sponsor

Gillespie Tech Magnet Cluster School

Robin Morgan-Sponsor

Mary Gage Peterson

Mitchel Meighen-STEAM Instructional Coach

Parkside STEAM Academy

Areal Joplin

Ruggles S.T.E.A.M. Elementary

Adayo Moton



2023 City-wide CPS STEM Exhibition Judges

A big THANK YOU to each of the following volunteers for the time they spent with our students and the feedback that was provided regarding the individual exhibits.

Ms. Smita Agrawal
Consulting

Mr. Cesar Castillo
BP America

Mr. Kurt Hedlund
Arris/Retired

Mr. Venkata Siva Rupesh Akurati
Illinois Institute of technology

Ms. Ashley Chiu
Eventbrite

Ms. Kelsey Hedlund
Conservice

Mrs. Xenia Alava
Baxter

Mrs. Brenda Coleman
Dept. of Human Services

Mr. Dale Hendricks
Academic Competitions

Mr. Larry Alofs
retired CPS teacher

Mr. Ernie Crafton
Peoples gas

Ms. Madeline Hennessy
University of Illinois at Chicago

Mr. King Ankobea-Ansah
Illinois Institute of Technology

Mr. Shawn Daniel
Exelon/Office of Chief Information

Mrs. Rebecca Hubbell
CNH Industrial

Ms. Sriramya Ayyagari
University of Illinois at Chicago

Dr. Lilly Degand
National Louis University

Mr. Andrew Hubbell
CITGO Petroleum Corporation

Mr. Raghunath Babu
Illinois Institute of Technology

Ms. Samone Dicks
T-Mobile

Mr. Ken Hunt
Hallberg Management

Dr. Shawn Bairstow
Baxter Healthcare

Mr. Charles Dobrovolny
Bell Labs / AT&T

Ms. Kristine Johnson
Retired

Mr. Vishal kumar Bhagchandani
IIT student

Dr. Mike Dominik
Orbital Engineering

Dr. Daniel Jordan
Columbia College Chicago

Ms. Mini Bhattacharya

Ms. Stephanie Drain
S Drain Engineering of IL, LLC

Mrs. Krishna Joshi

MS. Pat Billing-Medel
Abbott Laboratories, retired

Ms. Hannah Fernandez
University of Illinois at Chicago

Mr. Jimmie Julion
Chicago Dept of Water Mgmt-Retired

Ms. Alexis Billingslea
National Society of Black Engineers
Chicago Chapter

Mr. Barry S. Finkel
Retired-Argonne National Laboratory

Miss Nicolette Kasza
Burns & McDonnell

Mr. Cyrus Bracey
Federal Aviation Administration

Ms. Stephanie Flynn
Daubert Chemical Company, INC.

Ms. Mekhakhem Kheperu
Metropolitan Water Reclamation Districts

Mr. Michael Brocksmith
Peoples Gas

Mr. Peter Fong
JPMorgan Chase

Dr. Soliman Khudeira
Illinois Tech

Ms. Niratsa Noikoon Brown
Challenger Learning Center

Miss. Kaelyn Gasvoda
UIC

Dr. William King
Abbott Laboratories (retired)

Ms. Brenda Calfin
Abbott Laboratories, retired

Mr. Norman Gelfand
Fermilab (Retired)

Dr. Rachel Kirpes
US EPA

Mr. Mark Camp
Becht Engineering

Ms. Kari Giles
Burns & McDonnell

Mrs. Gosia Kokoszka
MWRD

Ms. Giana Cantore
Lane Tech Student Observer

Ms. Gloria Harper
Golden Apple

Mr. Leonard Kosiba
St. Francis Hospital (retired)

Mr. Marcelo Caplan
Columbia College Chicago

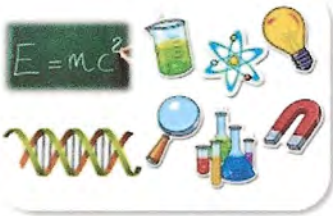
Mr. Todd Harriett
Ecolab - retired

Ms. Dorothy Kramer
Retired CPS teacher

Mr. Gaurav Kumar BP Americas	Mr. Tito Olguin People's Gas	Ms. Yasha Srinivas Illinois Institute of Technology
Mr. Jainender Kumar SAP Americas	Mr. Chidi Osuji Zebra Technologies Corporation	NA. Michael Stasinopoulos Exelon Corp
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Mr. Carl Landahl Enertrix	Mr. Jawahar Panchal Illinois Institute of Technology	Ms. Aalayah Ticer NSBE Chicago
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Miss. Madison Laskowski Design Science	Mr. Ashwin Pothukuchi IBM	Ms. Jacqueline Tran T-Mobile
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Ms. Neva Manalil Design Science	Mrs. Tracy Raoul Teach Our Children, Inc.	Ms. Clowana Walker Peoples Gas
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Azalea Mendoza NORC at the University of Chicago	Mr. Brian Rogers	Ms. Maddie Weller Peoples Gas
Dr. Julie Minbiole Columbia College Chicago	Mrs. Shannette Rooks cooperate/professional	Mr. Maurice White Apple
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Dr. Stephanie Moy Chicago Exotics Animal Hospital	Mr. John Schaller	Dr. Jacqueline Witherspoon Olive-Harvey College,
Ms. Rania Nasif Design Science	Mr. Topher Schultz US Cellular	Mrs. Stacey Womack UL Solutions
Linh Nguyen Illinois Institute of Techonology	Mrs. Laura Sigward bp America	Ms. Julia Wozniak EA Engineering, Science, and
Mr. Patrick Nolan Navistar	Ms. Vidhi Singh	Mr. Kenneth Zdunek Illinois Institute of Technology

THANK YOU!!!!!!!!!!!!!!

STUDENTS, TEACHERS, JUDGES, PARENTS, CPSSSF, INC. AND OAC FOR ALL OF YOUR SUPPORT



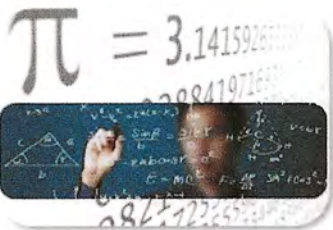
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Technology



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