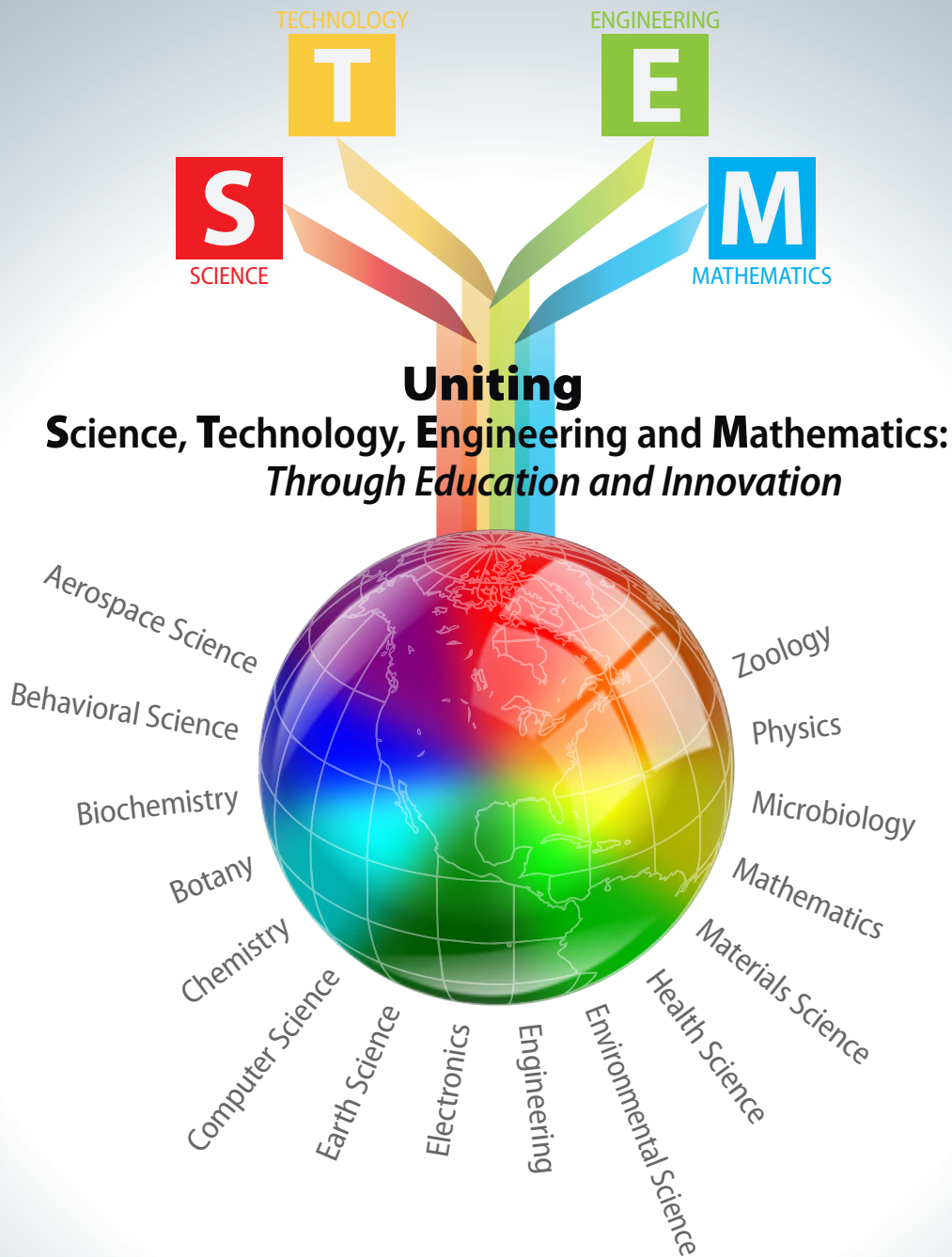


2016 PROGRAM BOOK

66TH ANNUAL

CHICAGO PUBLIC SCHOOLS STUDENT SCIENCE FAIR, INC., PRESENTS



Museum of Science and Industry, March 17 - 20, 2016

Symposium presentations, March 17, 2016



MOTOROLA SOLUTIONS
FOUNDATION



CHICAGO PUBLIC SCHOOLS
STUDENT SCIENCE FAIR, INC.
Nonprofit Organization



MOTOROLA SOLUTIONS
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Motorola Solutions Foundation is proud to support the Chicago Public Schools' Student Science Fair. We encourage students to use their imaginations to envision the impossible. Through the power of science and math, your creativity has no limits. **Your future begins today.**

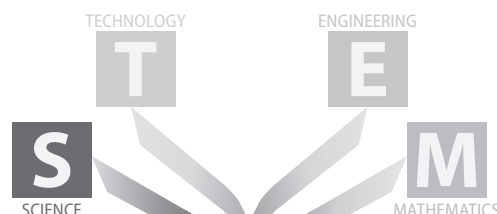
ENVISION THE IMPOSSIBLE

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2016 Science Fair Program Book

66th ANNUAL CHICAGO PUBLIC SCHOOLS STUDENT SCIENCE FAIR



***UNITING Science, Technology, Engineering and Mathematics:
Through Education and Innovation***



Brought to you by:

Chicago Public Schools Student Science Fair, Inc.

Academic Supporters:

Chicago Public Schools

Office of College and Career Success

Office of Teaching and Learning

Site Host:

Museum of Science and Industry

2016 Theme by:

Lane Technical College Prep High School -

ComEd After-school Science Club

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Office of Teaching and Learning

Sylvia Nelson Jordan

Manager, Academic Competitions

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Schedule of Events

Thursday, March 17, 2016 – Symposium – details on page 24

9:00 A.M. – 11:30 A.M.	Symposium Morning Sessions (e-Suite, Lab 2 & Classroom 3)
11:30 A.M. – 12:45 P.M.	Symposium Luncheon (Rosenwald Room) - by invitation only

Friday, March 18, 2016 – Exhibit Judging – details on page 28

7:30 A.M. – 8:30 A.M.	Judges Briefing and Breakfast (Auditorium)
8:30 A.M. – 12:00 NOON	Judging of Exhibits (West Pavilion)
11:00 A.M. – 11:30 A.M.	Opening Ceremony (West Pavilion Main Entrance)
11:30 A.M. – 12:00 NOON	Ribbon Cutting and Exhibit Tour (West Pavilion)
11:30 A.M. – 1:30 P.M.	Judges Buffet Luncheon (C132)
12:00 NOON – 1:30 P.M.	Recognition Luncheon (Rosenwald Room) - by invitation only
12:00 NOON – 1:00 P.M.	Judging Continues (West Pavilion)
1:00 P.M. – 3:15 P.M.	Science Fair Open to the Public (West Pavilion)

Saturday, March 19, 2016 – Public Viewing and Additional Events – details on page 43

9:00 A.M. – 11:45 A.M.	Sixth-Grade Regional Winners Tour of the Museum
9:30 A.M. – 3:15 P.M.	Science Fair Open to the Public (West Pavilion)
9:30 A.M. – 3:00 P.M.	International Science and Engineering Fair Judging (Auditorium)
11:45 A.M. – 1:00 P.M.	Sixth-Grade Regional Winners Luncheon (Rosenwald Room) By invitation only – pages 43-44
2:00 P.M. – 3:00 P.M.	ComEd Science Club Social (Rosenwald Room) – by ticket only

Sunday, March 20, 2016 – Awards Convocation – details on page 45

11:00 A.M. - 12:00 NOON	Science Fair Open to the Public (West Pavilion).
1:00 P.M. – 3:00 P.M.	Awards Convocation (Auditorium) – by ticket only



Proclamation from the Mayor of the City of Chicago



OFFICE OF THE MAYOR CITY OF CHICAGO

RAHM EMANUEL
MAYOR

PROCLAMATION

WHEREAS, from March 17 through March 20, 2016, the Chicago Public Schools Student Science Fair, Inc. will sponsor the 66th Annual Citywide Chicago Public Schools Student Science Fair for Chicago Public Schools' students which will be held at the Museum of Science and Industry; and

WHEREAS, the 2016 Student Science Fair follows the theme, *Uniting Science, Technology, Engineering, Mathematics Through Education and Innovation*; and

WHEREAS, approximately 340 students from a total of 10,000 participants at the local school and area levels will be selected to exhibit their projects and symposium papers at the Museum of Science and Industry; and

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

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

NOW, THEREFORE, I, RAHM EMANUEL, MAYOR OF THE CITY OF CHICAGO do hereby proclaim March 17-20, 2016, to be CHICAGO PUBLIC SCHOOLS STUDENT SCIENCE FAIR DAYS IN CHICAGO, in recognition of the exceptional talents displayed by these students and in appreciation of the teacher sponsors and parents who have provided support and encouragement for these young scientists.

Dated this 28th day of August, 2015.

Mayor



2015 Opening Ceremony

On Friday, March 20th, the 65th 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.



Phoenix Military Academy JROTC cadets marching in for the presentation of colors.



Debra Sutkowski Markmann, President of Student Science Fair, Inc. Board of Directors, welcomes the gathered crowd.



Glennie King, 2015 Chairperson greets the Sponsors, guests and the participating CPS students.



Matt Blakely, Motorola Solutions Foundation, expresses his continued support for STEM education and science fair.



Mr. David Mosena, Museum of Science & Industry, greets everyone present at the Museum, especially Governor Rauner.



Glennie King, 2015 Chairperson, Gov. Rauner, Sponsors and guests gather to cut the ribbon to open the 2015 Student Science Fair.



About the Chicago Public Schools Student Science Fair (CPSSSF)

About the Fair

We are proud to present the 66th Annual Chicago Public Schools (CPS) Student Science Fair. The fair originated in 1950 as a vehicle to encourage and motivate young science students. Since then, a volunteer army of teachers and administrators has sustained this exemplary program. The objectives of the CPS Student Science Fair are to:

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

School, Regional and City Science Fairs

More than 10,000 students enter projects, beginning at the local school level. Local school winners exhibit at the regional level. Approximately 300 winners from 10 Regional Networks Science Fairs are exhibiting at this three-day citywide fair. The CPS Student Science Fair is always held in the spring at the Museum of Science and Industry.

Student Science Symposium and IJAS Essay Contest

Additional components of the fair are the CPS Student Science 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 Fairs

Each year, approximately 50 students are selected to participate in the exhibition, and 15 research paper presentations are delivered at the Illinois Junior Academy of Science (IJAS) State Science Fair. This event is scheduled May 13 and 14, 2016, at Millikin University in Decatur, Illinois. In addition, the four top-scoring students from the CPS Student Science

Fair will participate at the International Science and Engineering Fair (ISEF), which will be held in Phoenix, Arizona, May 8-13, 2016.

Sponsors

Primarily, the CPS Student Science Fair, Inc. has three sponsoring organizations. The Chicago Public Schools, Office of College and Career Success oversee the planning for the local school and regional science fairs. The CPS Office of College and Career Success is the host department for CPSSSF, employing the Regional Science Fair Coordinator, CPS/SSF Liaison and contributing operational funds to run the fair each year. The Museum of Science and Industry hosts the citywide fair and provides technical support services to the participants and teacher volunteers. Chicago-area corporations spearhead the drive within the Chicago business community to obtain the necessary financial support for a successful science fair experience. The Motorola Solutions Foundation, ComEd, An Exelon Company, BP America, Inc., Peoples Gas and Takeda Pharmaceuticals International, Inc. are this year's corporate sponsors.

How You Can Help

To help the CPS Student Science Fair and encourage young people to consider careers in the STEM fields, monetary contributions must be solicited. Without this financial support, the school and regional fair support, the production of the high quality event of the City Science Fair, 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 cpsscifair.org.



Greetings from the Mayor of the City of Chicago

Dear Friends:

As Mayor and on behalf of the City of Chicago, I offer my warmest greetings and welcome to everyone gathered for the 66th Annual Chicago Public Schools Citywide Science Fair.

This year's Science Fair proudly welcomes approximately 300 select students from various schools throughout Chicago. Because of the involved investigation and curious experimentation allowed by science and related projects, students are equipped with some of the tools necessary to excel both inside and outside of the classroom. With the theme *Uniting Science, Technology, Engineering, Mathematics Through Education and Innovation*, the Fair will showcase a variety of scientific research projects from our city's best and brightest students.

This fair will not only present the students the opportunity to display their knowledge of substantial developments in the areas such as aerospace science, physics, and mathematics with essays and display boards, but also make room for the development of crucial analytical and critical skills. Additionally, the process from the beginning of research to the culminating presentation builds confidence and experience that will be beneficial throughout their burgeoning academic and professional careers.

On behalf of the people of Chicago, please accept my best wishes to every participant for an enjoyable and successful competition.

Sincerely,

Mayor
City of Chicago





Greetings from the President of the Board of Directors Chicago Public Schools Student Science Fair, Inc.

Welcome and Salutations!

It is a pleasure to join you at the Museum of Science & Industry for the 66th Annual Student Science Fair. As the President of the Board of Directors for Student Science Fair, Inc. and on behalf of its members, we offer our sincerest appreciation to the teachers, principals, volunteers, parents, corporate sponsors and the museum. With these partnerships, the Board has been able to provide the next generation of critical thinkers and innovators with the opportunity to present their data to today's professionals in the STEM fields.

This year's theme, *"Uniting Science, Technology, Engineering, and Mathematics: Through Innovation and Education"* continues to build on the previous year's topics of "Building on STEM", "Bringing STEM Home" and "STEM Meeting Global Needs". Science Fair has been a tradition with the Chicago Public Schools for the past 66 years. Science, Technology, Engineering and Mathematics are adventures in the educational journey, which lead to exciting careers, improving people's lives and keeping our world GREEN.

Science, Technology, Engineering, and Mathematics also revolutionize our lives. There is unlimited potential for tomorrow's professionals in STEM careers. The innate desire for discovery lies in the hearts of each Science Fair participant. The members of the Board of Directors for Student Science Fair, Inc. want to inspire and enable students to unlock the mysteries of their field through participation in the city, state and international science fairs and to provide scholarships to the most promising students. I believe that the next breakthrough in Science, Technology, Engineering, and Mathematics will come from one of the participants in this Science Fair.

Students, embrace the knowledge and mentorship of your parents and teachers. Realize that you are the future. Remember that the secret to life is to think like a proton because they are always positive, and never believe an atom because they make up everything. Also remember that to be number one, you have to be odd and the most powerful computer chip is your imagination!

On behalf of the members of the Board of Directors for Student Science Fair, Inc., please accept our appreciation for your dedication to increasing the knowledge in the STEM fields. Your contributions are helping make our world a better and safer place.



Congratulations to Uniting Science, Technology, Engineering, and Mathematics: Through Innovation and Education!

Warmest regards,

Debra M. Sutkowski, Ph.D.
President, Board of Directors
CPS Student Science Fair, Inc.
Director, Scientific Publications Lead
Astellas



Greetings from BP America, Inc. Corporate Sponsor

Greetings!

On behalf of BP, I congratulate on your participation in the 66th annual Chicago Public Schools Student Science Fair. Your hard work, dedication and the support of your family and teachers has brought you this far, and you should be extremely proud of your achievements. You are an inspiration to all of us.

BP is proud to provide support to the 2016 Science Fair. For more than six decades, BP America has supported education initiatives focused on science, technology, engineering and mathematics. Over the past three years alone, BP has invested more than \$60 million in programs and activities that encourage students across the United States to pursue STEM subjects and careers. We have more than 2,500 employees in Chicagoland, many of whom work in STEM fields, and many of whom got their start by participating in science fairs just like this one. BP has sponsored the Science Fair for many years, and every year we are impressed by the extraordinary projects the students present.

BP is one of the world's leading international oil and gas companies, providing its customers with fuel for transportation, energy for heat and light, retail services and petrochemicals products for everyday items. As far as BP is concerned, there couldn't be a more fitting theme for this year's fair than "Uniting Science, Technology, Engineering and Mathematics: Through Innovation and Education."

Your work demonstrates the importance of scientific inquiry, and will serve you well whatever you decide to pursue. Curiosity, drive and continually increasing your knowledge are skills that universities and employers will always value.



Again, congratulations to all of the Science Fair participants, families and teachers. I look forward to seeing your projects, and I hope you have a wonderful experience.

Kim Anderson
Chief Financial Officer
BP Products North America Inc.



beyond petroleum®



Greetings from ComEd, An Exelon Company Corporate Sponsor

To all Science Fair Participants

Congratulations on your participation in the 66th annual Chicago Public Schools Student Science Fair! Finding the answer to your scientific question can be an electrifyingly powerful moment of both scientific and self-discovery.

That is why ComEd continues to be an energetic supporter of the science fair process. We believe it yields mature, confident, skilled and competitive young leaders who have career goals and the preparation, discipline, and drive to attain them. Good luck in this year's competition! We look forward to seeing how students have been inspired by this year's theme, UNITING STEM through Education and Innovation

Best wishes,

Anne Pramaggiore
President and CEO
ComEd



WELCOME

ComEd[®]
An Exelon Company



WELCOME

Greetings from Motorola Solutions Foundation, Corporate Sponsor

To all Science Fair Participants

Congratulations on being selected to participate in the Chicago Public Schools Science Fair! We applaud your interest in science and your commitment to exploring the world around you.

At Motorola Solutions, we share your passion for innovation and scientific exploration. Motorola's global team of scientists, engineers, and technicians use many of the processes you're demonstrating today to develop new devices and technologies to make communities safe and thriving.

Motorola Solutions and Motorola Solutions Foundation are proud to support your commitment to learning. We extend our thanks to your teachers, parents, friends, family members, 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 happier, healthier, safer place.

Best Regards,

Matt Blakely
Executive Director
Motorola Solutions Foundation



**MOTOROLA SOLUTIONS
FOUNDATION**



Greetings from Peoples Gas Corporate Sponsor

Welcome and congratulations!

On behalf of everyone at Peoples Gas, I welcome you to the 66th Annual Chicago Public Schools Student Science Fair. You should take great pride in knowing that this fair is all about you. Your hard work and thirst for knowledge have earned you the opportunity to showcase your talents in the fields of science, technology, engineering and mathematics. We also acknowledge the parents, teachers and staff of Chicago Public Schools. Your support and guidance are an integral part of these students' success.

We commend more than 10,000 students who have entered projects at all levels, and we're delighted to see the display of imagination, creativity and visualization that Chicago Public School students bring to the science fair each year. Peoples Gas is proud to support 16 middle school science clubs, in which our engineers volunteer their time to work with students on their science projects, some of which are on display this weekend.

This year's theme, "Uniting science, technology, engineering and mathematics through education and innovation," is certainly one to which Peoples Gas can relate. Many of our employees acquire and use STEM skills in the jobs they perform on a daily basis to ensure our network delivers safe and reliable natural gas to the city of Chicago.

At Peoples Gas, we are committed to supporting our communities. Through partnerships and collaborations such as the science fair, we strive to support students in acquiring the values, leadership and interpersonal skills that will help them prepare for life beyond the classroom.

Best of luck to all the participants.

Charles Matthews

President
Peoples Gas



WELCOME

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Greetings from Takeda Pharmaceuticals International, Inc. Corporate Sponsor

Dear Future Innovators:

Curiosity and interest are at the heart of discovery and innovation. Without them, we would not have computers, televisions, smart phones, or many other items we use on a daily basis. These innovations and advances begin with you and with the Chicago Public Schools Student Science Fair. Today we celebrate your curiosity and interest to think differently, to see the possibility, and to potentially create the next big invention, cure or blockbuster.

At Takeda Pharmaceuticals, we strive to create better health for people worldwide through leading innovation in medicine. We are a diverse organization committed to working with local communities to fully understand their needs in order to best deliver industry-leading solutions. Achieving this goal requires having great scientists – like you.

We are pleased to continue our sponsorship of Chicago Public Schools Student Science Fair and to provide scholarships for outstanding students to continue their education in science. We are looking to you to be part of ensuring we deliver healthcare options for patients in need, whether that is through developing medicines or inventing technologies that help make that happen.

Best of luck to everyone participating in this year's science fair. Also, a special thank you to all the teachers, parents, and volunteers who give their time, dedication and support for you to explore your curiosity and interest.

Best wishes,

Nancy Siepman, Ph.D.
Senior Vice President
Global Development Operations
Takeda Pharmaceuticals International, Inc.





Greetings from the Museum of Science and Industry's President and CEO

Welcome and Congratulations

The Chicago Public Schools Student Science Fair is always an inspiring time at the Museum of Science and Industry. For 66 years, the innovating thinking of Chicago's young scientists has been seen by thousands of people visiting the Museum during science fair weekend

These students are showing people that science is fun, teaching them science is all around them, and inspiring people to come up with their own discoveries. It's a great opportunity for students to serve as role models to younger children.

The Museum's partnership with the CPS Student Science Fair exemplifies our vision: to inspire and motivate our children to achieve their full potential in the fields of science, technology, medicine and engineering. All of us at the Museum of Science and Industry are pleased to welcome the students whose hard work have brought them to the science fair, as well as all the parents, teachers, judges and supporters who help make the science fair a success.

Good luck to all the participants. We're proud of what you've done to make it this far. We want you to keep asking tough questions and creating solutions to problems. Your efforts will help make the world a better place. Best wishes,



Best wishes,

David R. Mosena
President and CEO
Museum of Science and Industry, Chicago

WELCOME



museum of
science+industry
chicago



Greetings from the Chicago Public Schools Chief Education Officer

Dear Science Fair Community,

Welcome to the 2016 Chicago Student Science Fair! I congratulate all of you on having made it this far and wish you luck during the competition.

It makes me proud, as our District's Chief Education Officer, to see your passion for Science, as STEM education is a top priority at CPS. Now is your chance to show off that passion – to present the brilliant, innovative projects you've created and see what other students from around the city have done.

Even more important than your projects is the skills and knowledge it took to create them. This strong foundation in Science, along with the confidence, dedication and work ethic you've developed as a result of this process will serve you well in your classroom, and in the college and career of your choice.

This year's Science Fair would not be possible without the dedicated teachers who helped you prepare, and the community partners that help CPS provide robust enrichment activities for our students. Be sure to thank these individuals for their contributions, as well as the family and friends who have supported you along your journey.

Congratulations again on reaching the City Science Fair. Enjoy this experience by presenting your projects well and learning as much as you can from the projects of others.

Sincerely,

Dr. Janice K. Jackson
Chief Education Officer
Chicago Public Schools





WELCOME

Greetings from the Chicago Public Schools Chief Officer, Office of Teaching & Learning

*Students, Teachers, Supporters
and Guests,*

Welcome to the 66th Annual City Science Fair! It brings me great joy to welcome students, teachers, sponsors and guests. Congratulations to all the students who are participating today. During the Science Fair, students will showcase the results of their preparation, hard work, and dedication to their science projects. Their presence today demonstrates the desire to enhance their skills and become critical thinkers.

The Science Fair program is presented by Student Science Fair, Inc. with Chicago Public Schools as their supporting Academic Sponsor. We both share the goal of engaging students in meaningful and challenging academic work in addition to preparing them for the growing fields of science, technology, engineering and mathematics.

This program would not be possible without the dedication of talented teachers, parents and sponsors, who work hard behind the scenes to help students develop their projects and fine-tune their presentations. Your investment of time and resources proves that when parents, teachers, sponsors and students work together, our students accomplish great things. Your work is invaluable to promoting the innovation that will prepare our young scientists for continued success.

I wish all the participants the best of luck and thank all those involved in making this event possible

Sincerely,

Annette Gurley
Chief Officer
Office of Teaching and Learning





Greetings from the CPS Manager, Academic Competitions

Dear Science Fair Participants:

I am proud to welcome students, teachers, volunteers, and staff to the 66th Chicago Student Science Fair! Most of all, congratulations to the students and their teachers for advancing to this prestigious event.

It can be difficult for non-Science Fair participants to truly grasp the immense amount of work and dedication it takes for student and coaches to participate in this event. Students develop projects, test and analyze them prior to presenting them before you today. Additionally, teachers serve 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 Science Fair, Inc. partner and staff for making this event possible. Our partners are a committed group of people 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. Science Fair participants are learning critical academic skills. They are also practicing time management and discipline. The skills students receive from Science Fair will help them succeed 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.

Please enjoy the year and I look forward to another successful Science Fair.

A handwritten signature in cursive script.

Sylvia Nelson Jordan
Manager, Academic Competitions
Department of Student Support & Engagement





WELCOME

Greetings from Student Science Fair, Inc. Chairperson

Welcome to the 66th Annual Student Science Fair! We are looking forward to a wonderful and rewarding experience for all of our students who have made it to this awesome event. It has taken countless hours of hard work to make it to this level in the competition. You have completed your research, done your experimentation, analyzed and evaluated your data, now you are here to showcase and exhibit your amazing talents and skills. This year's theme is *Uniting Science, Technology, Engineering and Mathematics (STEM): Through Education and Innovation*, which is an extension of last year's theme *Building on STEM*. In observing students from various countries who came together to compete at the International Science and Engineering Fair in Pittsburgh, Pennsylvania last year it was evident that STEM unites us globally all around the world. It takes education to prepare and equip our minds for learning and processing information which leads to innovative ideas and designs.

Through STEM classes our students are becoming visionaries, problem solvers and critical thinkers. The Science Fair provides them the opportunity to share what they have learned. As our students embark upon a path to greater success, we want them to remember that they are our future and we are expecting them to become productive citizens in our society.

I would like to thank all of the students, parents, guardians, teacher sponsors, school administrators and staff for your support of the Science Fair. Thank you to the professionals who volunteer their time to serve as judges for this competition. A special thank you to the CPS Student Science Fair, Inc. Board of Directors and our major corporate sponsors: BP America, Inc., ComEd An Exelon Company, Motorola Solutions Foundation, Peoples Gas and Takeda Pharmaceuticals International, Inc. In addition, a special thank you to the Chicago Public Schools for academic support and the Museum of Science and Industry for hosting the Student Science Fair.



Enjoy everyone!

Glennie King
2016 Student Science Fair Chairperson
Chicago Public Schools Student Science Fair, Inc.



CHICAGO PUBLIC SCHOOLS
STUDENT SCIENCE FAIR

Peoples Gas is proud to support the 66th Annual Chicago Public Schools Student Science Fair.



Peoples Gas employee Brian Martin (left) judges a student's project at the 2015 CPS Student Science Fair.

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Corporate Sponsors

Beginning in 1958, the scope and complexity of the Science Fair 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., Peoples Gas and Takeda Pharmaceuticals International, Inc. 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 Science Fair possible.

Over the years, the involvement, responsibilities, and obligations of the corporate sponsor have evolved.

Currently, Science Fair 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 fairs and the city fair at the Museum of Science and Industry, 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 Science Fair.

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.

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



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 2015 Science Fair a success.

Operating Fund

Donations to the Operating Fund help produce the City Science Fair, the Regional Science Fairs and many programs supporting students' independent research for science fair.

Academic Sponsor

- CPS, Office of College and Career Success
- CPS, Office of Teaching and Learning

Site Sponsor

- Museum of Science and Industry

Corporate Sponsor – \$25,000 Minimum

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- Motorola Solutions Foundation
- Peoples Gas

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Angels - \$1,000 Minimum

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Patrons - \$500 Minimum

Donors - \$100 Minimum

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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 Science Fair and will major in one of the following areas science, technology, engineering or mathematics 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
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- University of Illinois at Chicago

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If you are interested in supporting the Science Fair 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 or Melanie Wojtulewicz at wojo@aol.com.



Symposium and Essay Contests

Symposium Information

Symposium is an integral and popular feature of the Chicago Public Schools Student Science Fair. This event held on Thursday, March 17, 2016, takes place at the Museum of Science and Industry. 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 17, 2016. 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 13 and 14, 2016.

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 2016 topic is: *“The Perfect Swarm”*. Ten of the IJAS student essays are selected as outstanding and the top scoring essay will be forwarded to the IJAS for evaluation at the state level.



SYMPOSIUM THURSDAY

2016 Essay Contest Semi-Finalists

801	Benaissa, Zadden	10	ISP	Whitney M. Young	The Perfect Swarm: Swarm Robotics
802	Cruz, David	11	SLA	Phoenix Military HS	Emergence of Swarm Intelligence
803	Doyle, Jacob	9	NW10	Chicago Agri HS	Effects of Bee Nutrition on Colony Collapse
804	Estrada, Mariana	7	NW06	STEM Magnet	The Beauty of Bacterial Swarming Motility
805	Laniewski, Gabriella	9	ISP	Whitney M. Young	Bacterial Motility of Escherichia coli
806	Ma, Ruiheng	10	ISP	Whitney M. Young	The Perfect Swarm
807	Meunier, Emile	10	ISP	Whitney M. Young	The Perfect Swarm
808	Nawara, Robert	10	ISP	Whitney M. Young	The Africanized Swarm of the Americas
809	Smith, Mia	10	ISP	Whitney M. Young	Humans: An Example of the Perfect Swarm?
810	Zhuo, Jennifer	12	ISP	Whitney M. Young	Globalized Communication

* See page 29 for the Network Abbreviation Key



Symposium Schedule

Thursday, March 17, 2016

ROOM 1- Session A 9:00 - 11:30 A. M.

Ex#	Student Name	Grade	Project Title	School	Category	Net-work
601	Chung, Phil	11	The Universal Metal Cleanser	Von Steuben HS	Chemistry	NW01
602	Dallek, Benjamin	12	Dye-Sensitized Solar Cells	Lincoln Park HS	Chemistry	ISP
603	Estrada, Josue	10	The Effects of Temperature on Magnetism	Lincoln Park HS	Chemistry	ISP
604	Li, William	12	Freezing Point Depression of Solutions	Lincoln Park HS	Chemistry	ISP
605	Ebrahim, Anusha	11	Reversing Antibiotic Resistance	Young HS	Microbiology	ISP
606	Lund, Cynthia	12	Restraining Bacteria Growth	Lincoln Park HS	Microbiology	ISP
607	Molina, Cristian	9	Antibacterials: Honey vs. Neosporin	Lincoln Park HS	Microbiology	ISP
608	Pio, Abigail	10	Is Your SPF Telling the Truth?	Phoenix	Microbiology	SLA

ROOM 2- Session B 9:00 - 11:30 A. M.

609	Silva, Jessica	12	The Effect of Pollution on Plant Growth	Lincoln Park HS	Botany	ISP
610	Anderson, Erika	11	Poop to Power	Von Steuben	Environmental Science	NW01
611	Bethke, Eleni	9	How Clean Are Chicago's Water Sources	Lincoln Park HS	Environmental Science	ISP
612	Hernandez, Josemanuel	12	Effectiveness of 2 Sediment Retention Devices	Curie	Environmental Science	NW08
613	Mun, Emily	9	Which Solar Panel Conducts the Most Energy?	Lincoln Park HS	Environmental Science	ISP
614	Nunez, Stoykof	9	Weight Restoration for Flight	Phoenix	Environmental Science	SLA
615	Puczko, Daniel	10	The Effect of Mixed Cultures on MFC	Lane Tech HS	Environmental Science	NW04
616	Galvan, Hazel Rose	9	Polyaniline Synthesis	Von Steuben	Environmental Science	NW01

ROOM 3 - Session C 9:00 - 11:30 A. M.

617	Colunga, Efrain	9	Aerodynamic Shape vs. Distance	Phoenix	Aero-Space Science	SLA
618	Wischnewsky, Samuel	12	Optimizing Infills of 3D Printed Objects	Young HS	Computer Science	ISP
619	Gomez, Brandon	10	Coding a Maze Solving Robot	Von Steuben	Engineering Science	NW01
620	Olaguez, Alejandra	11	Cheating with Dice	Phoenix	Mathematics	SLA
621	Pan, Li	12	Trinomial Expansion and Recursive Sequences	Lincoln Park HS	Mathematics	ISP
622	Sanchez, Octavio	11	Modeling Space-Time	Phoenix	Mathematics	SLA
623	Conway, Colette	11	What Fabric Moves the Fastest Through Water?	Von Steuben	Physics	NW01
624	Tuite, Zachary	9	Effect of Water Temperature on Cooling Time	Lincoln Park HS	Physics	ISP

* See page 28 for the Network Abbreviation Key



Symposium & Essay Luncheon Schedule

Thursday, March 17, 2016

Rosenwald Room– 11:30 A.M.

Remarks	Glennie King Chairperson CPS Student Science Fair, Inc.
Introduction of Special Guest	Jennifer Patush Symposium & Essay Committee Co-Chairperson
Guest Speaker	D. Doel Soejarto, PhD Professor of Pharmacognosy Department of Medicinal Chemistry and Pharmacognosy University of Illinois at Chicago
Recognition of Symposium Participants	Jacqueline DiLorenzo Symposium & Essay Committee Co-Chairperson
Recognition of Judges (Years of Service)	Jennifer Patush Jacqueline DiLorenzo Glennie King

SYMPOSIUM THURSDAY



Symposium & Essay committee members along with Nina Hike, 2014-2015 Chairperson.



Symposium participant, Anthony Bartley from Lindblom Math & Science.



Symposium & Essay judges.



Essay participants.



Exhibit Information

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

The exhibitors at this year's CPS Student Science Fair were selected from approximately 10,000 students who competed in school and regional science fairs throughout the city during this past December and January. These winners were chosen on the basis of their scientific approach, thoroughness, creativity, and presentation. Once again we welcome CPS student winners from the QED: Chicago's Youth Math Symposium. These winners were chosen on the basis of 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 66th Annual City-wide Science Fair.

On Friday, March 18, 2016, over 300 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 Science Fair Handbook.

The top 50 winners will participate at the Illinois Junior Academy of Science (IJAS) State Science Fair, held May 13 and 14, 2016, on the campus of the Millikin University, Decatur, Illinois. Students will compete with other students from around the state.

On Saturday, March 19, 2016, the top 35 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 8-13, 2016 in Phoenix, Arizona.



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 Science Fair participants will be recognized with certificates and souvenirs at the Awards Convocation on Sunday, March 20, 2016, at 1:00 p.m., in the main auditorium of the Museum of Science and Industry. Approximately 100 students will be individually recognized with cash prizes, awards, and other special gifts. In addition, all CPS Student Science Fair participants are eligible to apply for financial support grants and college scholarships in their senior year of high school.

All CPS Student Science Fair 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 Schedule

Friday, March 18, 2016

Science Fair Exhibit Judging

7:30 A.M.– 8:30 A.M.	Judges Briefing and Breakfast	Main Auditorium
8:30 A.M.– 11:00 A.M.	Judging of Exhibits	West Pavilion
11:00 A.M.– 11:30 A.M.	Opening Ceremony	West Pavilion Main Entrance
11:30 A.M. - 12:00 NOON	Ribbon Cutting and Exhibit Tour	West Pavilion
11:30 A. M. -- 1:30 P.M.	Judges Buffett Luncheon	C132
12:00 NOON – 1:30 P.M.	Recognition Luncheon (by Invitation only)	Rosenwald Room
12:00 NOON – 1:00 P.M.	Judging Continues	West Pavilion
1:00 P.M. - 3:15 P.M.	Fair Open to the Public	West Pavilion



EXHIBIT JUDGING
FRIDAY



Exhibits by Category

Ex# Student Name Grade Title Network School

Aerospace Science

Exh	Student Name	Grade	Title	Network	School
1	E Flores, Andrea	8	Ping Pong Levitation	NW03	Locke J
2	E Colunga, Efrain	9	Aerodynamic Shape vs. Distance	SLA	Phoenix Military HS
3	D Ren, Jeffrey	9	The Efficiency of Propellers	SLA	Phoenix Military HS
4	D Borjan, Stefan	10	The Space Elevator Ribbon	NW04	Lane HS
5	E Marusarz, Andrzej	10	Does the Angle of Attack Affect Lift?	NW10	Kennedy HS
6	E Ortega, Susana	12	Effect of the Wing's Shape on Distance	NW08	Hancock HS

Behavioral Science

7	E DeSimone, Kelsi	7	Short Term Memory At It's Best	NW02	Ravenswood
7	E Kaplan, Hannah	7	Short Term Memory At It's Best	NW02	Ravenswood
8	E Maldonado, Damien	7	Does Music Give You Energy?	NW06	Galileo
9	E Alanis, Marlene	8	Gratitude by Gender	NW02	Armstrong
10	E Irons, Tommia	8	Can Chewing Gum Make you Smart?	NW13	Carver
11	E Johnson, Annie	8	Testing Eyewitness Testimony	NW01	Ebinger
12	E Danchuk, Olivia	8	How Powerful is the Placebo Effect?	NW05	Columbus
12	E Melnyk, Ulyana	8	How Powerful is the Placebo Effect?	NW05	Columbus
13	E Patton, Leah	8	Eye Can Remember	NW09	Woodson-UofC
14	E Phung, Lily	8	The Decoy Effect	NW02	McCutcheon
15	E Ramirez, Morgan	8	Time Constraint Debate	NW04	LaSalle
16	E Babayeju, Olamide	8	Coloring Outside the Lines	ISP	Skinner Classical West
16	E Ricketts, I'deyah	8	Coloring Outside the Lines	ISP	Skinner Classical West
17	E Hernandez, Cindy	9	Does Gender Affect the Ability to Concentrate?	NW10	Kennedy HS
18	E Pukala, Grace	9	Don't Judge A Food By It's Cover	NW10	Kennedy HS
19	E Szaflarski, Anna	9	Mint Effect on Temperature	NW10	Kennedy HS
20	E White, Teanna	9	The Perception of Beauty	NW03	Clark HS
21	E Garcia, Jorge	10	How Does Exercise Affect Short Term Memory?	NW03	Steinmetz HS
22	E Hill, Lauryn	11	Sex Mirage	NW13	Julian HS
23	E Dominguez-Ramirez, Judith	12	The Effects of Music on the Brain	ISP	Juarez HS
24	E Priego, Aurora	12	Texting vs. Eating vs. Reaction Time	ISP	Juarez HS

Biochemistry

25	E Brown, Nyah	7	Vitamin K: Guest of Honor at Platelet Party	NW01	Taft HS
26	E Folds, Alexis	7	Does Temperature Affect DNA Extraction?	NW11	Davis M
27	E Bass, Naomi	8	Sugar High? Sugar Low?	NW04	Audubon
28	E Gonzalez, Priscila	8	What Drinks Cause Osteoporosis?	NW06	Salazar
29	E Maganti, Aneesh	8	Apple Oxidation - Variety Based?	NW04	Blaine

Network (Abbreviation)

AUSL (AUSL)	Independent School Principals (ISP)	Network 5 (NW05)	Network 10 (NW10)
Charter (CHTR)	Network 1 (NW01)	Network 6 (NW06)	Network 11 (NW11)
Contract (CNTR)	Network 2 (NW02)	Network 7 (NW07)	Network 12 (NW12)
Military (SLA)	Network 3 (NW03)	Network 8 (NW08)	Network 13 (NW13)
Options (OPTN)	Network 4 (NW04)	Network 9 (NW09)	

EXHIBIT JUDGING
FRIDAY



Exhibits by Category

Ex#	Student Name	Grade	Title	Network	School
30 E	Pan, Rachel	8	Heartburn Helper	NW06	Sheridan
31 E	Zollicoffer, Michaela	8	I Can't Breathe! Using Plants to Treat Asthma	ISP	Young HS
32 E	Shanahan, Isabel	9	Toxic Turtle Eggs?	ISP	Young HS
33 E	Harvey, Tiyun	10	Measuring the Amount of Acetic Acid in Vinegar	NW03	Steinmetz HS
34 E	Tan, Alyssa	10	Burning Calories	NW03	Foreman HS
35 E	Mendez, Jessica	11	The Effects of Chemicals on Hair	NW04	Kelvyn Park HS
36 E	Hejnar, Aleksandra	12	Effect of pH on Catalase Breaking Down H ₂ O ₂	NW02	Amundsen HS
37 E	Mendez, Gerardo	12	Factors Influencing Decomposition of Starch	NW06	Ogden HS
38	Nguyen, Phuong Thanh	12	The Effect of pH Level on Yeast Reaction Time	NW02	Amundsen HS
39	Burrell, Amenti	12	Which Liquid Helps a Plant Grow Best?	NW11	Wacker
40 E	Chen, Janette	7	Space Seeds!	ISP	Haines
40 E	Deng, Cindy	7	Space Seeds!	ISP	Haines
41 E	Moore, Cameron	7	The Effect of Glucose on Plant Growth	NW09	Kenwood HS
42 E	Cole, Kameron	8	Acid Rain...A Silent Killer	NW03	Clark G R
43 E	Lopez, Esmeralda	8	Let It Go, Let It Grow!	NW08	Shields
44 E	McDougal-Lee, D'Yana	8	Zapped Beans	NW05	Frazier Int'l Magnet
45 E	Gaskin, Lily	9	Hydrogen Peroxide on Seed Germination	NW10	Chicago Agri HS
46 E	Schoenecker, Kristine	9	Rad Radishes!!	NW10	Chicago Agri HS
47 E	Ali, Syed	10	The Efficiency of Hydroponics vs. Soil	NW02	Mather HS
48 E	Buchanan, Davora	10	Can Grass Stop Soil Erosion?	NW10	Morgan Park HS
49 E	Bulanhagui, Alianna	10	The Effect of Glycera on Brassica Juncea	NW04	Lane HS
50 E	Espino, Itandegui	10	Does Radiation Affect Plant's Growth?	ISP	Juarez HS
51 E	Vogwill, Daniel	10	Vertical Farming: The New Wave of Agriculture	NW10	Chicago Agri HS
52 E	Bershed, Abeer	11	Effects of an Electromagnetic Field on Plants	NW02	Mather HS
53 E	Boyd, Arianna	11	The Effect of Supplements on Plant Growth	NW10	Morgan Park HS
54 E	Gomez, Kiana	11	Effect of Greywater on Plants	NW10	Chicago Agri HS
55 E	Panaligan, Jobb	11	Testing Salt Filtration Ability of Plants	NW02	Mather HS
56 E	Lugo, Fernando	12	The Effects of HCl on Brassica Rapa Height	NW06	Ogden HS
57 E	Tyler, Ziggi	12	Soiled It!	NW06	Ogden HS
58 E	Villalobos, Giselle	12	Bean Varieties and Their Respiration Rates	NW08	Hancock HS
Chemistry					
59 E	Jackson, Jade	7	How Does Wrapping Affect Spoilage?	NW10	Barnard
60 E	London, Akili	7	Hair-drogen Peroxide	NW05	Mason
61 E	Marshall, Nilah	7	Effectiveness of Corrosion Removal Methods	NW09	Kenwood HS
62 E	Pham, Calvin	7	Do Bleaching Agents Really Work?	NW02	McCutcheon
63 E	Reames-Henry, Dorothea	7	First Flush	NW04	Nettelhorst
64 E	Hinostroza, Amy	7	Dry Ice vs. Liquids	NW06	Lozano
65 E	Tarnavchyk, Nadiya	7	Nice Teeth No Sweets	NW05	Columbus
66 E	Arguello, Jacqueline	8	The Rockin Rock Candy	NW05	Nobel
66 E	Marchan, Jackqueline	8	The Rockin Rock Candy	NW05	Nobel

* See page 28 for the Network Abbreviation Key



Exhibits by Category

Ex#	Student Name	Grade	Title	Network	School
67 E	Bailey, Carollyn	8	Toxic vs. "Green" Detergents	NW12	Dixon
68 E	Bartley, DyMand	8	Does Temperature Effect the pH of Fruits?	NW11	Joplin
69 E	Basic, Ena	8	The Luminosity of Luminol	NW01	Beaubien
70 E	Bertrand, Joseph	8	How Will Dry Ice React?	NW12	Black
71 E	Brown, Alexandria	8	Do All Liquids Evaporate at the Same Rate?	NW12	Burnside
72 E	Bryant, Roger	8	The Effect of Temperature on Elasticity?	NW03	Young, E
73 E	Carpio, Cristian	8	Your Daily Dose of Disease: BPA	NW04	Linne
73 E	Chavez, Juan	8	Your Daily Dose of Disease: BPA	NW04	Linne
74 E	Cervantes, Tanya	8	Doctor Elastic	ISP	Peck
75 E	Coogan, Kelly	8	How Do Antifungal Agents Affect Yeast Growth?	ISP	Dore
76 E	Foster, Jaleesa	8	Plop Plop Fizz Fast	NW12	Thorp J N
77 E	Hernandez, Axel	8	Stay Hydrated	NW05	Columbus
78 E	Joseph, Tera	8	Pressure Temperature Relationship	NW01	Oriole Park
79 E	Kelner, Anneliese	8	The Pain of Acid Rain	NW04	Audubon
80 E	Klak, Lina	8	Electrolyte Efficiency	NW04	Franklin
81 E	Liu, Keying	8	Sweet Solution	NW06	Sheridan
82 E	Mojica, Amara	8	Antacid Potency	ISP	Dore
83 E	Moy, Julie	8	Freezing Point Depression: The Meltdown	NW04	Skinner North
84 E	Neely, Kaylee	8	Saturated Fats in Cooking Oil	NW05	Crown
85 E	Rodriguez, Lisset	8	Salt Water Energy	NW06	Salazar
86 E	Rojas, Yvette	8	Electrolytes Challenge	NW10	Hurley
87 E	Roman, Micheal	8	Using the pH Scale for Drinks	NW08	Lara
88 E	Shines, Ariyana	8	Electrolytes: Sports vs. Orange Juice	NW12	Dixon
89 E	Simmons, Ashanti	8	Chromotography	NW13	Garvey M
90 E	Sobus, Sandra	8	Sour Candy pH Levels and Acidity	NW01	Dever
91 E	Stokes, Lanasha	8	Cool Candy	NW05	Melody
91 E	Thomas, Dakyla	8	Cool Candy	NW05	Melody
92 E	Truevillian, Kennedy	8	Salt Water Energy	NW05	Frazier Int'l Magnet
93 E	Verdi, Selmy	8	Burning Calories	NW13	Washington G
94 E	Zajac, Karol	8	How Does Malonic Acid Affect the BR Reaction?	NW10	Twain
95 E	Abioye, Hassan	9	Wet With a Chance of Evaporation	CHTR	Chicago Math & Science
96 E	Banez, Lara	9	Which Beverage Produces Gas the Fastest?	NW03	Steinmetz HS
97 E	Jackson, Kimani	9	Keeping It Hot	NW11	Lindblom HS
98 E	Reynoso, Oscar	9	Concentration Challenge	NW11	Lindblom HS
99 E	Garklavs, Veronica	10	Fire Retardants: Organic vs. Commercial	ISP	Young HS
100 E	Jaimes, Jorge	10	How Electricity Changes pH	ISP	Lincoln Park HS
101 E	Martinez, Erendira	10	Uncovering Hidden Sugar	ISP	Juarez HS
102 E	Mendoza, Llecenia	10	What Chemical is the Best for a Cold Pack?	ISP	Juarez HS
103 E	Poole, Jonathan	10	Fuel Alternatives: Agricultural Based Ethanol	NW10	Chicago Agri HS
104 E	Severance, Gabriel	10	Effect of Enzymes in Stain Removal	ISP	Lincoln Park HS

* See page 28 for the Network Abbreviation Key



Exhibits by Category

Ex#	Student Name	Grade	Title	Network	School
105 E	Bradley, Shelby	11	Evaporation Rate	ISP	Young HS
106 E	Bucio, Erik	11	Cis Trans Isomers	CHTR	Chicago Math & Science
107 E	Chung, Phil	11	The Universal Metal Cleanser	NW01	Von Steuben HS
108 E	Johnson, Dasia	11	Fireproof Balloon	NW03	Clark HS
109 E	Simpson, Nia	11	Candle Flames in the Wind	SLA	Carver Military HS
110 E	Walker, Sakima	11	Soda Pop Explosion!	NW03	Clark HS
111 E	Zamora, Tania	11	Ice Cubes Dissolve Fastest in What Substance?	NW02	Lake View HS
112 E	Dallek, Benjamin	12	Dye-Sensitized Solar Cells	ISP	Lincoln Park HS
113 E	Johnson, Tawaii	12	Can Baking Soda Substitute in a Recipe?	NW03	Clark HS
114 E	Li, William	12	Freezing Point Depression of Solutions	ISP	Lincoln Park HS
115 E	Nesbit, Kevin	12	Big Pieces or Small Pieces?	NW03	Clark HS
116E	Podobinska, Kathy	12	Which Type of Water has the Best pH Level?	NW10	Kennedy HS
Computer Science					
117 E	Barnard Alvarez, Richard	7	Powers of Pi	NW06	Jackson A
118 E	Gruda, Marcin	7	Better Wi-Fi	NW01	Palmer
119 E	Gutierrez, Mariana	8	Who Has the Strongest Password?	NW13	Gallistel
120 D	Jefferson, Justin	8	In the Future!	NW13	Owens
121 D	Rishi, Maansey	8	The Sudoku Solver	ISP	Young HS
122 E	Hernandez, Benjamin	10	Overclock vs. Stock GPU; What is Better?	NW02	Lake View HS
123 D	Sutton, Asuntha	10	Focusing Signals for Better Wireless Network	SLA	Carver Military HS
124 E	Wischnewsky, Samuel	12	Optimizing Infills of 3D Printed Objects	ISP	Young HS
125 E	Xu, Nicholas	12	Modeling Particle Accelerators	ISP	Payton HS
126 D	Zhang, Guochuan	12	Quasi-Optimal Computing Through PDE Analysis	NW04	Lane HS
127 D	Zhu, Jerry	12	Novel Quantum Encryption Algorithm	NW04	Lane HS
Earth Science					
128 E	Strong, Kenneth	7	What Makes Ice Melt Fastest?	NW10	Morgan Park HS
129 E	Marquez, Rocio	8	Shakin' Up Soil	NW13	Washington G
130 E	Valtierra, Valeria	8	Rising Seas, Sinking Lands	NW13	Washington G
131 E	James-Anderson, Alissa	9	Are All Preservation Methods Equal?	NW11	Lindblom HS
132 E	Lacy, Dwajuan	9	Craters and Meteorites	NW03	Clark HS
133 E	Pate, Nicole	9	Why Doesn't the Ocean Freeze?	NW03	Clark HS
134 D	Espino, Adrian	10	Wave Velocity of a Tsunami	NW03	Steinmetz HS
135 E	Nash, Emily	11	Rate of Leaf Decay in Different Temperatures	NW10	Chicago Agri HS
Electronics					
136 E	Cranston, Avery	7	Which Batteries Last Longer	NW10	Kellogg
137 E	Ornelas, Enzo	7	Solar With Light Bulbs	NW03	Sayre
138 E	Guzman, Madison	8	Turning Heat into Electricity	NW04	Skinner North
139 E	Mullings, Kaitlyn	8	Which Wavelength Will Charge A Mobile Phone?	NW10	Kellogg
140 E	Soulsby, Julia	8	Resistance is (Still) Futile	NW01	Taft HS

* See page 28 for the Network Abbreviation Key

EXHIBIT JUDGING
FRIDAY



Exhibits by Category

Ex#	Student Name	Grade	Title	Network	School
141 D	Obra, Angelo	9	How Does an Electromagnetic Generator Work?	NW02	Lake View HS
142 E	Altenbach, Isabella	10	The Effect of Magnets on Wireless Electricity	NW04	Lane HS
143 E	Patterson, Samone	10	It All Makes Cents Now	SLA	Carver Military HS

Engineering Science

144 E	Argent, Alyssa	7	A Stern Statement	NW01	Taft HS
144 E	Saccone, Leilani	7	A Stern Statement	NW01	Taft HS
145 D	Bui, Andrew	7	PSM Personal Snow Melter	ISP	Skinner Classical West
146 D	Byers, Maria	7	Water: The Core of Survival	NW01	Edison
147 E	Crotty, Benjamin	7	Salinity and Hydroelectric Power	NW04	Burley
148 D	Hernandez, Janeli	7	Can You Grab It?	NW08	Nightingale
149 D	Toledo, David	7	Parabola WiFi Antenna	NW08	Columbia Explorers
150 D	Arroyo, Frida	8	Comfort on the Job: The Perfect Chair	NW08	Columbia Explorers
151 D	Bolanos, Daniel	8	Soaring to Science	NW13	Gallistel
152 D	Brown, Kyla	8	Zip Those Buds	ISP	Moos
153 D	Donlin, Maeve	8	Just Add Water 2.0	NW01	Ebinger
154 E	Li, Andrew	8	Are You Stronger Than a Bridge?	NW02	Coonley
155 E	Lopez, Jacqueline	8	Keepin' Cool	NW08	Shields
156 D	Maynez, Stephanie	8	The Effects of Bridge Design & Weight Capacity	NW13	Gallistel
157 D	Myers, Van	8	APT: The Autonomous Pet Toy	NW09	Kenwood HS
158 D	Sirovatka, Jackson	8	A More Ergonomic Shovel	ISP	Moos
159 E	Zhang, HaoTing	8	Bricking Point	ISP	Healy
160 D	Gomez, Brandon	10	Coding a Maze Solving Robot	NW01	Von Steuben HS
161 E	Lynch, Charlie	10	Dome Strength and Their Diameters	NW01	Von Steuben HS
162 D	Tavas, Gabriel	10	Audio for All Senses	NW01	Northside HS
163 D	Colak, Ali	11	Cleaning Radioactive Waste With Robots	NW01	Von Steuben HS
164 E	Gorecka, Maria	11	Which Bridge Design is the Strongest?	NW10	Kennedy HS
165 E	Abdulkaem, Hanan	12	Building Microscope for iPhone and a Galaxy	NW02	Mather HS
166 E	Nunez, Joseph	12	The Effect of Wheels on a Vehicle	NW08	Hancock HS
167 E	Xu, Nova	12	Combatting Dust Storms with Wiper Mechanism	ISP	Payton HS

Environmental Science

168	Chaidez, Jessica	7	Do Gas Stations Pollute Our Soil?	NW10	Dawes
169 E	Gonzalez, Abigail	7	Oh No! Ice on the Road!	NW10	Dawes
170 E	Haughey, Madilyn	7	Controlling Erosion in an Erratic Environment	NW01	Edison Park
171 E	Brown, Max	8	H ₂ O No! Heavy Metals!	NW04	Audubon
172 E	Casey, Gwendolen	8	Chicago River MFC's	NW01	Peterson
173 E	Dukes, Sean	8	Shipping and Handling	NW09	Kenwood HS
174 E	Guy, Jace	8	Be Canny of Your Colors	NW10	Dawes
175 E	Li, Steven	8	The pH Odyssey	ISP	Healy
176 E	Lothian, Margaret	8	Chemical vs. Natural Herbicides	NW01	Prussing
176 E	Thran, Michelle	8	Chemical vs. Natural Herbicides	NW01	Prussing

* See page 28 for the Network Abbreviation Key



Exhibits by Category

Ex#	Student Name	Grade	Title	Network	School
177 E	Salinas, Maya	8	Cleaning Our City With Sunflowers	NW06	Salazar
178 E	Wodnicki, Alyssa	8	Danger at Sea! Stopping Ocean Acidification	ISP	Edgebrook
179 E	Yu, Madeline	8	Replicating Tsunami and Tsunami Barriers	NW04	Burley
180 E	Augustyn, Nicola	9	Oxygen We Breathe	NW10	Kennedy HS
181 E	Cousins, Brycen	9	The Effect of the Environment on Bridges	NW11	Lindblom HS
182 E	Goral, Natalia	9	What's In My Water?!	NW02	Amundsen HS
183 E	Mun, Emily	9	Which Solar Panel Conducts the Most Energy?	ISP	Lincoln Park HS
184 E	Nunez, Stoykof	9	Weight Restoration for Flight	SLA	Phoenix Military HS
185 E	Ortiz, Jacqueline	9	Which Areas Contain the Highest Ozone Levels?	SLA	Phoenix Military HS
186 E	Aguilar, Laura	10	Hydropower to Lift a Weight	NW01	Von Steuben HS
187 D	Jones, Kelly	10	Battle of the Sea	NW13	Julian HS
188 E	Mac-Williams, Luna	10	Annelid Analysis	ISP	Young HS
189 E	Puczek, Daniel	10	The Effect of Mixed Cultures on MFC	NW04	Lane
190 E	Rybarska, Weronika	10	Thermal Pollution and Aquatic Organisms	NW03	Steinmetz HS
191 E	VandeVelde, Amy	10	Soil Erosions Effect on Water Purification	NW10	Chicago Agri HS
192 E	Anderson, Erika	11	Poop to Power!	NW01	Von Steuben HS
193 E	Dowdell, Kapri	11	What's Under Your Feet at the Playground?	NW10	Morgan Park HS
194 E	Hernandez, Josemanuel	12	Effectiveness of 2 Sediment Retention Devices	NW08	Curie HS
195 E	Herrera, Jessica	12	Urban Air Pollution vs. Rural	NW08	Hancock HS
Health Science					
196 E	Kawula, Zuzanna	7	Antioxidant in Fruits	NW01	Beaubien
197 E	Adelman, Mason	8	The Mysteries of Our Peripheral Vision	NW06	Galileo
198 E	Adeyinka, Sharon	8	Free Radical Fighters	NW09	Beasley
199 E	Hoying, Lucy	8	Time of Day Effects on Performance	ISP	Young HS
200 E	Nguyen, Belle	8	Ibuprofen Dissolution	NW02	Rogers
201 E	Perez, Bryant	8	White Smile	NW08	Christopher
202 E	Salinas, Luis	8	Re-Energizing the Body	ISP	Skinner Classical West
203 E	Echols, Serena	9	Healthier Heavy Fruit	NW10	Morgan Park HS
204 E	Spaulding, Lorri	9	Vapor vs. Tobacco, Which Is Less Harmful?	NW11	Lindblom HS
205 E	Gehrenbeck, Malia	10	Dissolution Time of Enteric Aspirin Brands	NW01	Von Steuben HS
206 E	Hernandez, Victor	10	Vitamin C in Orange Juice	NW03	Steinmetz HS
207 E	Moreno, Sheilly	11	The Road to Creating an Artificial Pancreas	NW08	Curie HS
208 E	Neeson, Emily	11	Diet and Exercise in Colon Cancer Development	NW10	Chicago Agri HS
209 E	Tan, Xiamin	11	How the Immune System Protects Humans	NW08	Curie HS
210 E	Casarrubias, Jessica	12	Sweeteners vs. Sugar	SLA	Phoenix Military HS
211 E	Solis, Zayra	12	The Effect of Coffee on Daphnia Heart Rate	NW02	Amundsen HS
212 E	Torres, Abigail	12	Treatment of Medical Garments	ISP	Juarez HS
Material Science					

* See page 28 for the Network Abbreviation Key

EXHIBIT JUDGING
FRIDAY



Exhibits by Category

Ex#	Student Name	Grade	Title	Network	School
213 E	Cohen, Anna	7	Cup Phone Science and Sound Waves	NW04	Burley
214 E	Estrada, Joanna	7	Walking Coins on a Vertical High Wire	NW05	Nobel
215 E	Reba, Hannah	7	How Does Color Affect Heating by Light?	NW01	Prussing
216 E	Zurawski, Kathrine	7	Strength of Glue	NW01	Bridge
217 E	Adams, Brittni	8	Strength and Absorbency	NW12	Gillespie
218 E	Aguilera, Evangeline	8	It's A Miracle!	NW08	Christopher
219 E	Farrow, Johnnye	8	Homemade Modeling Clay	NW05	Ericson
220 E	Guyton, Miyauna	8	London Bridge is Falling Down	NW12	Gillespie
221 E	Jimenez, Angel	8	Choose the Right Oil!	NW08	Seward
221 E	Muniz, Jose	8	Choose the Right Oil!	NW08	Seward
222 E	Mena, Jasmin	8	Metal Power	NW08	Pasteur
222 E	Trinidad, Natalie	8	Metal Power	NW08	Pasteur
223 E	Pulido, Priscilla	8	Absorption of Light	NW08	Hamline
224 E	Tarasiewicz, Katie	8	Got Cold Feet?	NW01	Bridge
225 E	Turner, Charlie	8	Insulation Situation	NW04	Audubon
226 E	Alvarez, Luciano	9	Stay Warm	SLA	Phoenix Military HS
227 E	Craig, Amari	9	L.E.D. Lighting	SLA	Phoenix Military HS
228 E	Galvan, Hazel Rose	9	Polyaniline Synthesis	NW01	Von Steuben HS
229 E	Rodriguez, David	9	Shaking Up Some Energy	NW10	Kennedy HS
230 E	Dixon, Joshua	11	Aluminum Revival	ISP	Brooks HS
231 E	Potts, Jacques	11	Drip Drop	NW11	Lindblom HS
Mathematics					
232 D	Blake, Jonah	8	Coding the Sieve of Eratosthenes	ISP	Young HS
232 D	Goduco-Bunting, Jules	8	Coding the Sieve of Eratosthenes	ISP	Young HS
233 E	Le, Lilian	8	Our Crazy Genes	NW02	McCutcheon
234 E	Hammond, Taft	8	Creating Stars	ISP	Young HS
234 E	Newkirk, Ryan	8	Creating Stars	ISP	Young HS
235 D	Qiu, Wuyu	8	Polyominoes	NW06	Holden
236 E	Garcia, Natalie	9	Fibonacci Numbers in Nature	SLA	Phoenix Military HS
237 E	Georgopoulos, Leonidas	10	Effect of Models at Predicting NCAA Results	NW04	Lane HS
238 E	Gonzalez, Isaac	10	What Method is Fastest for Solving Rubik Cube?	ISP	Juarez HS
239 E	Martinez, Aristeo	10	Order in Chaos	SLA	Phoenix Military HS
240 E	Escobedo, Martha	11	Mastering Chopsticks: No Food Included	ISP	Payton HS
241 D	Farb, Beatrice	11	The Graph of Triangulations of the n-Gon	ISP	Payton HS
242 E	Forst, Elise	11	The Complete Diagram of the Divvy Dilemma	ISP	Payton HS
243 E	Lee, Taeyun	11	A Class of Smaller Infinities	ISP	Payton HS
244 D	Mularczyk, Hanna	11	The Graph that Keeps on Gifting	ISP	Payton HS
245 E	Olaguez, Alejandra	11	Cheating With Dice	SLA	Phoenix Military HS
246 E	Padilla, Joushua	11	Tetris Plus One	ISP	Payton HS
247 E	Sanchez, Octavio	11	Modeling Space Time	SLA	Phoenix Military HS

* See page 28 for the Network Abbreviation Key



Exhibits by Category

Ex#	Student Name	Grade	Title	Network	School
248 E	Sucich, Gabriel	11	A Place at the Table	ISP	Payton HS
249 D	Caffrey, Louise	12	How Applicable is Cantor's Set Theory?	ISP	Lincoln Park HS
250 D	McColgan, Matthew	12	Hooke's Law Get's the Hook	ISP	Payton HS
251 D	Pan, Li	12	Trinomial Expansion and Recursive Sequences	ISP	Lincoln Park HS

Microbiology

252 E	Acosta, Jasmine	8	Biowarfare: T4R vs. E.coli.B	NW05	Lowell
253 E	Anagha, Aneesh	8	The Effect of Melatonin on Cancer Cell Death	NW04	Skinner North
254 E	Balintona, Kristoffer	8	Bacterial Transformation Efficiency	NW05	Lowell
255 E	Garcia, Olga	8	Dilution of Disinfectants	NW09	Hendricks
256 E	Makowski, Barbara	8	Fruit DNA	NW01	Oriole Park
257 E	Padmanabhan, Joseph	8	Drug Synergism and Its Implications	ISP	Young HS
258 E	Perez, Brisa	8	Save Your Berries from Mold!	NW08	Columbia Explorers
259 E	Puc, Katarzyna	8	Most Effective Way to Kill E.coli Bacterium	NW01	Bridge
260 E	Banks, Kira	9	Can You Kill Me Now?	NW11	Lindblom HS
261 E	Fetsch, Jack	9	The Colorful Rainbow of Health Hazards	ISP	Young HS
262 E	Halilovic, Deniza	9	The Effect of Sugar on Carbon Dioxide	NW02	Lake View HS
263 E	Molina, Cristian	9	Antibacterials: Honey vs. Neosporin	ISP	Lincoln Park HS
264 E	Reynolds, Kameron	9	Effectiveness of Antibiotics	NW13	Julian HS
265 E	Malagon, Annyta	10	Does Sunscreen Have Any Impact on Yeast?	ISP	Juarez HS
266 E	Moffett, Ashonti	10	The Effect of Light on Yeast Colony Growth	ISP	Juarez HS
267 E	Perez, Liana	10	Effects of Cleaning Solutions on E.coli	NW03	Steinmetz HS
268 E	Pio, Abigail	10	Is Your SPF Telling the Truth?	SLA	Phoenix Military HS
269 E	Ramos, Raphaella	10	The Effect of Acne Creams on B. linens	NW04	Lane HS
270 E	Tran, Gabriella	10	The Effect of Papaya on Escherichia coli	NW04	Lane HS
271 E	Arif, Fizza	11	Do Zinc & Copper Nanoparticles Kill Bacteria?	NW02	Mather HS
272 E	Bernal, Carlos	11	Can Silvernano Neutralize E.coli?	NW02	Amundsen HS
273 E	Dinescu, Catalina	11	The Effect of Antibiotics on Bacteria Growth	NW02	Amundsen HS
274 E	Ebrahim, Anusha	11	Reversing Antibiotic Resistance	ISP	Young HS
275 E	Holt, Markal	11	Effects of Light on Regeneration in Planaria	NW03	Douglass HS
276 E	Palomares, Joseph	11	Effect of Ultraviolet Light on E.coli K12	NW02	Amundsen HS
277 E	Sotirova, Victoria	11	Effect of Tetracycline Resistance on E.coli	NW02	Amundsen HS
278 E	Bartley, Anthony	12	Discoidin Relevance to Human Cell Interact	NW11	Lindblom HS
279 E	Flores, Julie	12	Effect of Sunscreen on DNA Damage	NW08	Hancock HS
280 E	Lund, Cynthia	12	Restraining Bacteria Growth	ISP	Lincoln Park HS
281 E	Poole, Madeline	12	Rhizobacteria: The Key Food Security	NW10	Chicago Agri HS
282 E	Rodriguez, Bianca	12	Effect of Fabric Color on DNA	NW08	Hancock HS

Physics

283 E	Addo, Albert	7	A Windy Thought	NW05	Mason
284 E	Arguello, Eliot	7	The Relativistic Effects on Planetary Orbits	NW01	Taft HS
285 E	Ariathurai, Katherine	7	Reel Science	NW04	Bell

* See page 28 for the Network Abbreviation Key

EXHIBIT JUDGING
FRIDAY



Exhibits by Category

Ex#	Student Name	Grade	Title	Network	School
286 E	Beltran, Nicholas	7	The Floating Airbag	NW10	Cassell
287 E	Branda, Abigail	7	The Effect of Color on Solar Panels	NW04	Franklin
288 E	Capron, David	7	Lenz's Law: Magnetic Braking	NW01	Edison
289 E	Ellis, Marshall	7	Marble Mania	NW10	Morgan Park HS
290 E	Healy, Timothy	7	Decibel Decay	NW04	Bell
291 E	Huang, Jiayi	7	Plastic Degradation!	ISP	Haines
291 E	Huang, Sydney	7	Plastic Degradation!	ISP	Haines
292 E	Parson-Moore, Sheldon	7	How Much Height to Loop the Loop?	NW10	Kellogg
293 E	Perez, Jaden	7	Velocity & Gears	NW05	Sabin
294 E	Rivera, Diego	7	Shocking Electricity	NW10	Lee
295 E	Trotter, Gavin	7	Under Pressure!	NW01	Wildwood
296 E	Wysocki, Anastasia	7	Swimming With and Without Flippers	ISP	Lenart
297 E	Zintl, Quinn	7	Load, Pull, Whiz!	NW06	Jackson A
298 E	Adelien, Michel	8	Electromagnetic Potential	NW12	Washington H
299 E	Artz, Olivia	8	Arrow Depth	NW10	Byrne
300 E	Chen, Ivy	8	Sports Drink vs...	NW06	Sheridan
301 E	Clemente, Molly	8	Are You Singing What I'm Singing?	NW04	Blaine
302 E	Cole, Myles	8	Do Dimples Increase Distance?	NW04	LaSalle
303 E	Cuevas, Mayra	8	Voltage Power	NW13	Clay
304 E	DeGiulio, Anissa	8	Centripetal Force	NW10	Lee
305 E	Fantozzi, Mansa	8	How Do You Take Your Tea?	NW09	Hendricks
306 E	Horwitch, Jessica	8	Acoustical Sound Absorption	NW04	Blaine
307 E	Huang, Kayla	8	A Sticky Situation: Rosin and Overtones	ISP	Young HS
308 E	Johnson, Jeremiah	8	Electromagnetism	NW11	Green W
309 E	Majzoub, Omar	8	Aerodynamics of Airfoils	NW04	Franklin
310 E	Mixon, Micah	8	Simple Harmonic Motion	NW13	Garvey M
311 E	Lukasiewicz, Olaf	8	The Whirligig	NW01	Thorp O A
311 E	Pankiewicz, Milosz	8	The Whirligig	NW01	Thorp O A
312 E	Riordan, Megan	8	To Warm or Not to Warm - That is the Question	NW10	Cassell
313 E	Ryan, Maxwell	8	Rated 1 for Insulated Suitable for Below 0°C	NW01	Farnsworth
314 E	Vazzana, Mason	8	More Bang for Your Buck?	NW06	Sheridan
315 E	Warda, Luke	8	Effects of Wind Angle on Wind Turbine Output	ISP	Keller
316 E	Ahmed, Uzair	9	Effect of Homemade Rocket Fuel on Burnout Time	NW02	Lake View HS
317 E	Chavez, Joselyn	9	The Replenishing Race	ISP	Young HS
318 E	Em, Sincere	9	The Effect of Temperature on Luminosity	NW02	Amundsen HS
319 E	Lara, Armando	9	Best Insulation for a House	SLA	Phoenix Military HS
320 E	Oladipo, Mercy	9	Splish, Splash, Zap	ISP	Young HS
321 E	Plumley, Zachary	9	Effect of Location of TEG on Voltage Created	NW04	Lane HS
322 E	Ptaszek, Natalia	9	Which App is the Hottest?	NW10	Kennedy HS
323 E	Shamseldin, Marwan	9	Material Friction	NW06	Ogden HS

* See page 28 for the Network Abbreviation Key

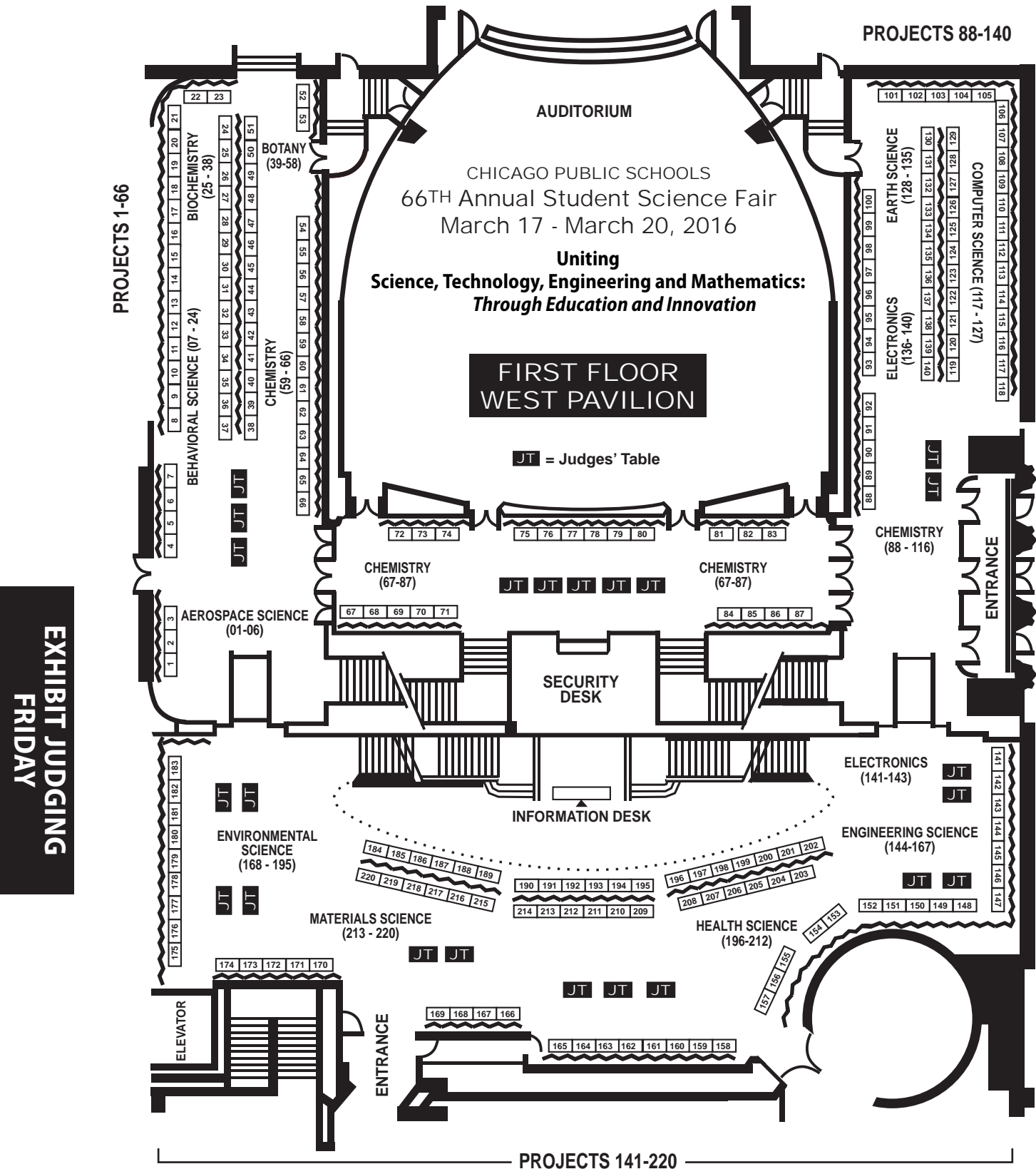


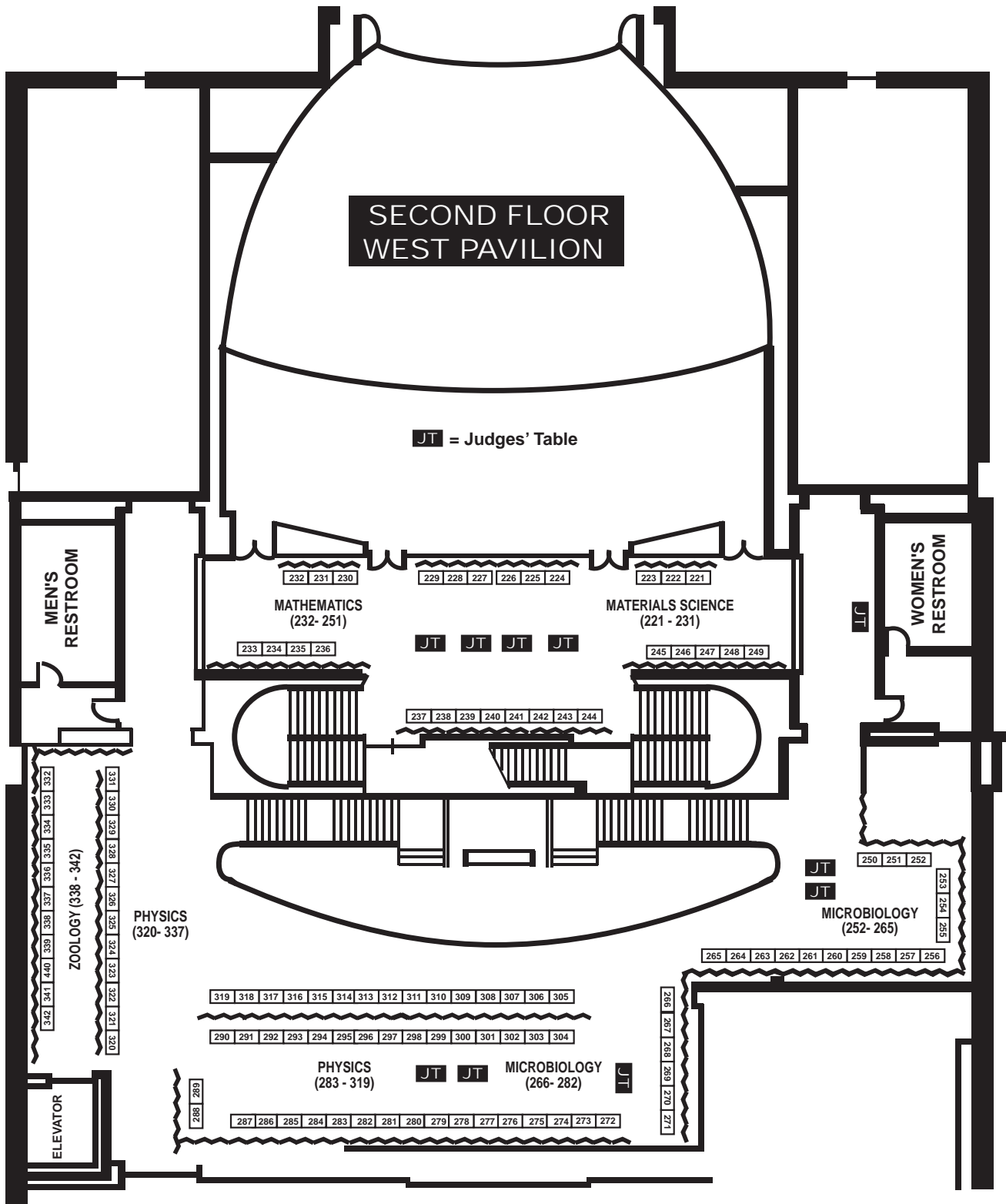
324 E Tuite, Zachary	9	Effects of Water Temperature on Cooling Time	ISP	Lincoln Park HS
325 E Vira, Maya	9	Lenz's Law: Magnet Through a Copper Tube	NW06	Ogden HS
326 E Yahya, Abdulkabir	9	Flight of Paper Airplanes	NW03	Steinmetz HS
327 E Dweh, Ben	10	Best Insulation for Soundproofing	NW10	Morgan Park HS
328 E Ibarra, Daniel	10	The Effect of Magnets on Coasters	NW06	Ogden HS
329 E Bhatt, Bhavin	11	Distance vs. Current	NW01	Taft HS
330 E Brown, Nicholas	11	Centripetal and Centrifugal Forces	NW10	Chicago Agri HS
331 E Chisti, Mohammed	11	Wind Power: Greener Future	NW01	Von Steuben HS
332 E Conway, Colette	11	What Fabric Moves the Fastest Through Water?	NW01	Von Steuben HS
333 E Hernandez, Denise	11	Granular Flow & Angles of Repose	NW11	Lindblom HS
334 E Kellum, Hakeema	11	Let's Build a Car	NW10	Morgan Park HS
335 E Park, Alec	11	Lifhack or Lifewack?	NW02	Mather HS
336 E Villalon, Glenda	11	The Effect of Electricity on Plants	NW02	Lake View HS
337 E Wells, Arthur	11	Changing The Game of Baseball	NW13	Julian HS

Zoology

338 E Fenske-Newbart, Jane	7	Mealworms: Nutritious and Delicious!	NW06	Jackson A
339 E Rendon, Nancy	7	Smarter Than Your Average Slime	NW05	Lowell
340 E Arcero, Jennifer	11	The Effects of Chemicals on Daphnia	NW04	Kelvyn Park HS
341 E Miller, Myelle	11	Relax and Take a Breather	NW13	Julian HS
342 E Perez, Jocelyn	11	Fruit-fly Eye-Color & Genetics	CHTR	Chicago Math & Science

Category	Elementary			Secondary			Total			Team Projects
	Male	Female	Total	Male	Female	Total	Male	Female	Total	
Aerospace Science	0	1	1	4	1	5	4	2	6	0
Behavioral Science	1	12	13	1	7	8	2	19	21	3
Biochemistry	1	6	7	1	6	7	2	12	14	0
Botany	1	6	7	5	9	14	6	15	21	1
Chemistry	8	31	39	12	10	22	20	41	61	3
Computer Science	3	2	5	5	1	6	8	3	11	0
Earth Science	1	2	3	2	3	5	3	5	8	0
Electronics	2	3	5	1	2	3	3	5	8	0
Engineering Science	8	9	17	5	3	8	13	12	25	1
Environmental Science	3	10	13	4	12	16	7	22	29	1
Health Science	3	4	7	1	9	10	4	13	17	0
Materials Science	3	12	15	3	3	6	6	15	21	2
Mathematics	5	1	6	8	8	16	13	9	22	2
Microbiology	2	6	8	7	16	23	9	22	31	0
Physics	21	14	35	13	9	22	34	23	57	2
Zoology	0	2	2	0	3	3	0	5	5	0
TOTAL ►	62	121	183	72	102	174	134	223	357	15





**EXHIBIT JUDGING
FRIDAY**



Student Exhibitors

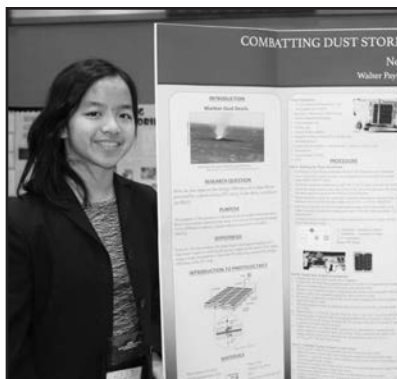
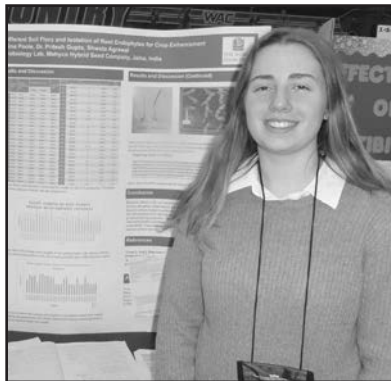
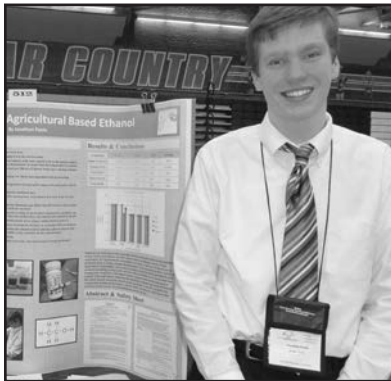
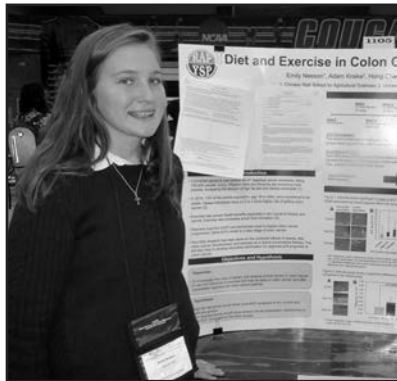
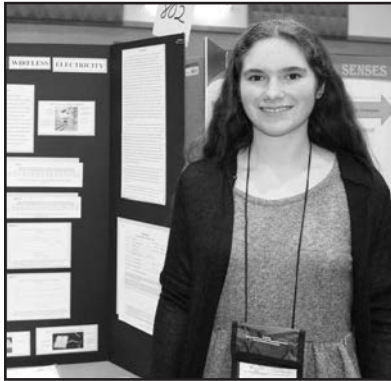


EXHIBIT JUDGING
FRIDAY



Student Exhibitors

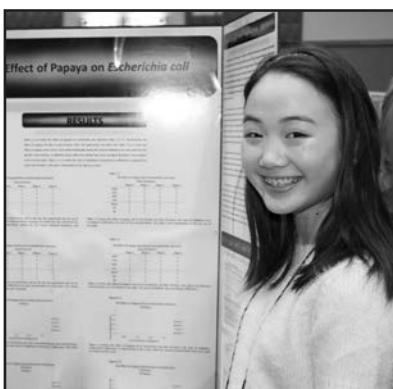
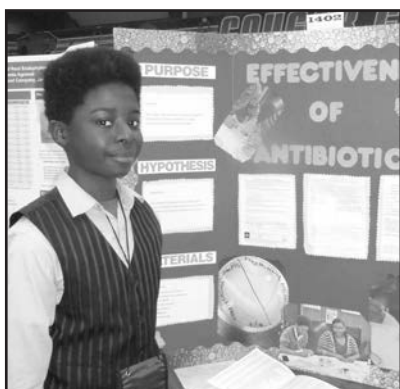
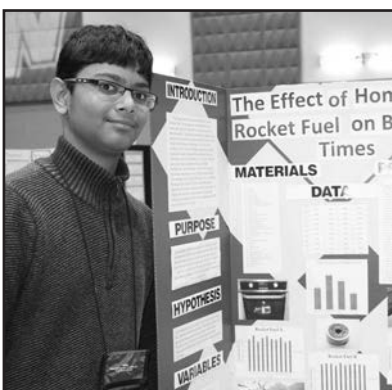
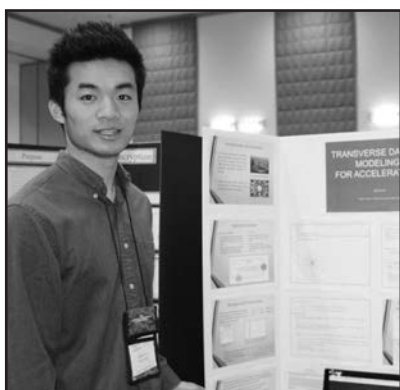
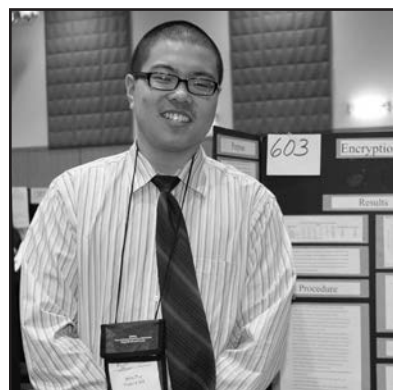


EXHIBIT JUDGING
FRIDAY



Student Exhibitors

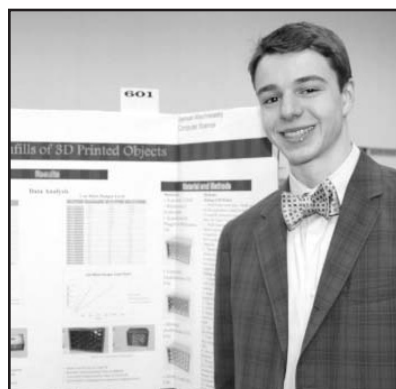
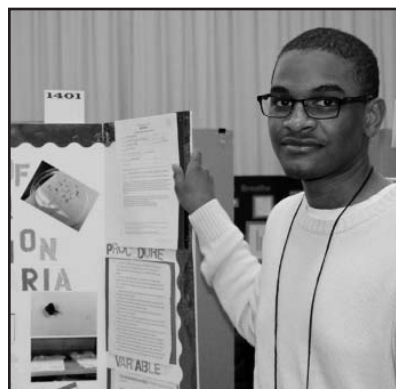
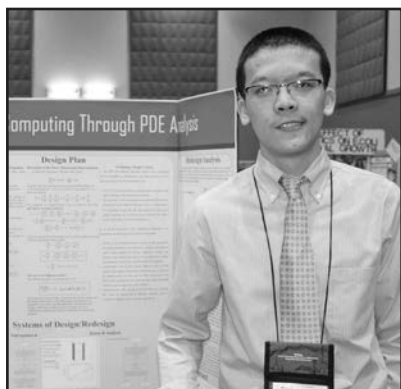
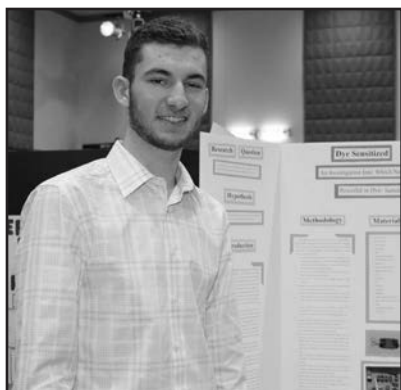
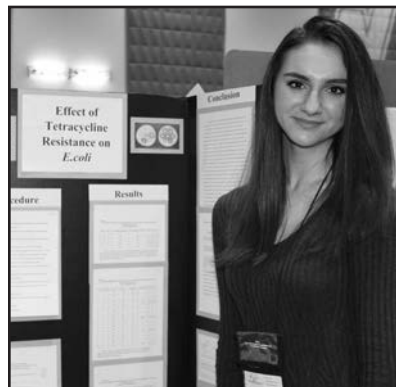


EXHIBIT JUDGING
FRIDAY



Sixth-Grade Regional Winners Recognition Luncheon

Saturday, March 19, 2016

11:45 A.M. – Rosenwald Room

Welcome

Glennie King
Chairperson
CPS Student Science Fair, Inc.

Comments

Melanie Wojtulewicz
Interim Executive Director
CPS Student Science Fair

Elizabeth Copper
Chairperson Elect
CPS Student Science Fair, Inc.

Presentation of Awards

Glennie King
Melanie Wojtulewicz
Elizabeth Copper

Group Photo

Allan Reisberg
Chairperson, Digital Imaging
CPS Student Science Fair, Inc.



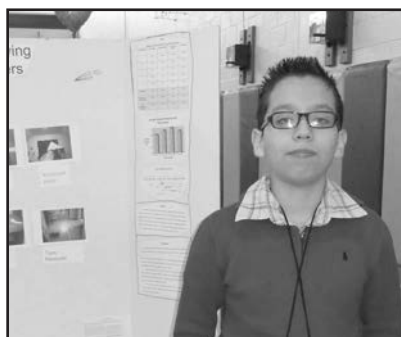
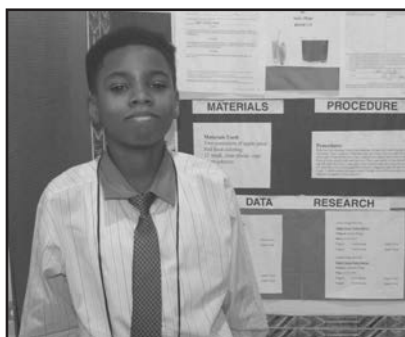
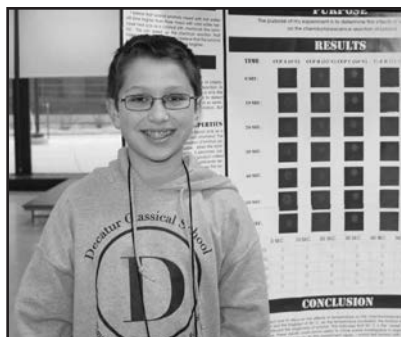
**PUBLIC VIEWING & 6TH GRADE
LUNCH SATURDAY**



Sixth-Grade Regional Winners

List of 2016 Sixth-Grade Regional Winners

Name	School	Project Title	Region
Chetkovich, Nia	Edgebrook	Which Apple Releases the Most Ethylene?	ISP
Garcia, Jose de Jesus	Peck	Far-Flying Gliders	ISP
Mui, Gillian	Lenart	Antifungal Medicines	ISP
Osenberg, Kyle	Wildwood	Solar Energy: Maximizing Output in Chicago	NW01
Troher, Zachary	Decatur	Crime Scene Investigation	NW02
Arroyo, Jennifer	Sayre	Does Water Temperature Affect Bath Bombs?	NW03
Cohen, Nina	Nettelhorst	Reading Comprehension	NW04
Bonds, DeAndre	Hefferan	Which Popcorn Pops the Best?	NW05
Madrigal, Martin	Sabin	Velocity and Gears	NW05
Decatus-Haddad, Leah	Galileo	Chromatography of Skittles	NW06
Anderson, Brooke	Murray	Tasty But Dangerous!	NW09
Haran, Thomas	Mt. Greenwood	What Electrolyte Fluid Has the Best Current?	NW10
Smith, Carel	Green	Bottlebot	NW11
Illidge, Andre	Pirie	Sight vs. Taste	NW12
Godbolt, Mikayla	Poe	Cracking the Polymer Myth	NW13



PUBLIC VIEWING & 6TH GRADE
LUNCH SATURDAY



Awards Convocation

Sunday, March 20, 2016

1:00 P.M. – Auditorium

Pledge of Allegiance

National Anthem

Greetings..... Glennie King
Chairperson, CPS Student Science Fair

Welcome Gary Sircus
Manager, Teacher Programs & IQST
Museum of Science and Industry

Remarks The Honorable Leslie Hairston
Alderman, 5th Ward
City of Chicago
Debra Sutkowski
President
CPS Student Science Fair Board of Directors

Awards Presentation..... Ruby Parnell-Booth
Chairperson, Special Awards and Tours Committee
• Special Awards
• Military Awards
• Special Tour Awards

Winners Recognized by..... Gary Sircus
Alderman Hairston
Debra Sutkowski
Sylvia Nelson Jordan

Recognition of Symposium Winners..... Jennifer Patush
Jacqueline Di Lorenzo
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 ... Glennie King
Chairperson, CPS Student Science Fair

Closing Remarks Glennie King
Chairperson, CPS Student Science Fair





Special Awards

A variety of incentives are provided by individuals, industry, educational organizations and professional societies. The contributors listed below and the representatives serving as judges, award cash awards, certificates of merit, 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 20, 2016, 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 Science Fair, 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 to a first time High School City Science Fair exhibition.

- Rita Nelson
- RyAnn Nelson -Jaiyesimi

AKA Education Incentive Award

A \$50 cash awards to an outstanding middle school female exhibitor in environmental science exhibitors.

- Linda Carter

American Association of Zookeepers-Lincoln Park

A \$50 cash award to an outstanding project involving animal behavior without manipulating the animal or to an outstanding project involving an environmental issue.

- Susan Moy

American Electroplaters and Surface Finishers Science Honors Award

Three \$400 cash awards will be awarded and presented at the American Electroplaters and Surface Finishers May Dinner Meeting

- AESF Chicago Branch- Andrew Gruda

American Meteorological Society

Two certificates of "Outstanding Achievement" to high school exhibitors for creative scientific endeavors in the areas of atmospheric and related oceanic and hydrologic sciences.

- Society for Science and the Public

American Nuclear Society

One \$100 cash award and certificate, one \$50 cash award and certificate; one \$25 cash award and certificate to exhibitors promoting peaceful uses of nuclear energy. Each student exhibitor's school will receive a certificate and recognition book.

- Dr. Roger W. Tillbrook

American Psychological Association

A certificate to an outstanding exhibit in Behavioral Science

- Society for Science and the Public

Anna Lisa Somera Consulting Award

A \$50 cash award to an outstanding female exhibitor.

- Anna Lisa Somera

Anti-Cruelty Society

A \$50 cash award to a student who exhibits humane care and treatment of animals in their experiment.

- Elliott Serrano

ASM Education Foundation

A medallion and certificate recognizing the winner of the best Materials Engineering project.

- Society for Science and the Public

Association for Women Geoscientists

A certificate to an exemplary female exhibitor in the area of Geoscience.

- Society for Science and the Public

Association of Women in Science

A \$50 Amazon.com gift card to an outstanding female exhibitor showing promise in scientific research.

- Karen Chien

Astronaut Joan Higginbotham Award

A \$300 cash award to a student who has a project in the field of Astronomy, Aerospace Science, Physics or Engineering.

- Melanie Wojtulewicz

ASU Rob and Melani Walton Sustainability Solutions Initiative

A certificate and nomination to enter for a Grand Price, a trip to Arizona for the 2017 Sustainability Solutions Festival to two outstanding high school exhibitors.

- Society for Science and the Public

Bartley Family Award

Two \$50 gift cards to outstanding exhibitors.

- Jeanette Bartley

Blue Cross/Blue Shield of Illinois

A pen and lip balm will be given to all city science fair participants.

- Jacqueline Jackson

Broadcom MASTERS

A special invitation to the top 10% of exhibiting middle grade exhibitors to qualify for middle school Science & Engineering Fair

- Society for Science and the Public



Special Awards

Charles Braxton Brown, Jr. Award of Ingenuity

A \$50 cash award to any minority student exhibiting ingenuity using electricity.

- Vincent Brown

Charles Braxton Brown, Jr. Craftsmanship Award

A \$50 cash award to an exhibitor that shows excellent design and exhibit construction.

- Vincent Brown

Chef Ezell Smith Award

A \$50 cash award to two students with exemplary projects relating to food science.

- Leonard and Edna Smith

Cheryl Deese Science Award

Three \$50 cash awards to outstanding exhibitors.

- Cheryl Deese

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 awarded for excellence in environmental science.

- David Bild

Chicago Intellectual Property Alliance (CIPA)

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

- Sarah Biggs

Chicago Principals and Administrators Association

\$100 Target gift cards to five high school exhibitors and \$100 Target gift cards to five middle school exhibitors in the categories of Behavioral Science, Biochemistry, Chemistry, Environmental Science, Mathematics, or Microbiology.

- Clarice Berry
- Kent Lau

Chicago Zoological Society-Brookfield Zoo

Ten one year Family Memberships to exhibitors demonstrating forward thinking in conservation or animal welfare.

- Christopher C. Panek
- Majorie Baker

Christine M. Krupa Award

One \$100 cash award to an outstanding project in Mathematics.

- Christine M. Krupa

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

Five \$200 cash awards to students whose work best exemplifies engineering design and creation.

- Dr. Peter Nelson, Dean

Copper's Encouragement Award

A \$50 gift card award to an outstanding middle school female exhibitor and a \$50 gift cards to an outstanding high school female exhibitor.

- Elizabeth Copper

Cynthia Slater Insurance Agency

One \$50 cash award to an outstanding exhibitor.

- Cynthia Slater

DNA Learning Center Scholarship

Two fully paid scholarships for a one week session to the DNA Learning Center Summer Science Camp (residential) located at the University of Notre Dame to two Outstanding exhibitors. Scholarship will cover tuition, lab fees, room and board, food and camp activities. Transportation to and from campus is not included.

- Dr. Amy Stark – University of Notre Dame

Davis Family Achievement Award

Six \$25 gift cards to outstanding exhibitors.

- Lillian B. Qualls
- Jacqueline Johnson
- Lois McClinton
- Sheila Ramsey

Delta Sigma Theta Sorority, Inc.

A \$25 cash award to 4 Outstanding middle school exhibitors. A \$50 cash award to 3 Outstanding high school exhibitors.

- Chicago Alumnae Chapter

Department of Science - CPS

A 2016 souvenir lanyard to each student exhibitor.

- CPS-Department of Science

Dr. Susan Engel Medical Award

One \$50 cash award to an outstanding project in the field of health science.

- Dr. Susan Engel

Earth and Environmental Science Award

Three \$100 cash awards to outstanding projects in the field of Earth and Environmental Science.

- David Petrovski
- Gary Cygan

Executive Director's Award

One \$200 cash award to an exhibitor selected by the Special Awards Committee.

- Melanie Wojtulewicz

Ezell Smith Award

One \$100 cash award to a student who has an exemplary exhibit in food science. One \$50 cash award to a student who has an exemplary exhibit relating to food science.

- Edna A. Smith
- Michael Smith
- Ezell E. Smith
- Leonard Smith

FBC Memorial Foundation for Assisted Living

One \$50 cash award to a middle school exhibitor that best demonstrates the most innovative use of technology.

- Linda Carter



Special Awards

Fischer Scientific

One microscope to an outstanding project in Microbiology; a Telescope Kit or a Solar System Model to two outstanding students in Areospace Science and/or Earth Science.

- David Isphording

Frey Scientific

Five \$50 gift certificates to outstanding middle school exhibitors and five \$50 gift certificates to outstanding high school exhibitors.

- Vince Zaccardi

Gerald Rudnick Technology Award

One \$50 cash award to a middle school exhibitor that best demonstrates the most innovative use of technology.

- Gerald Rudnick

Gonzalezles, Wahlberg, James, Gonzalezles Award

Four \$50 cash awards to outstanding middle school exhibitors that best use the scientific method in their exhibit.

- Eddie Marie Gonzalezles

Granular Materials Award

One \$100 cash award to an outstanding project on granular materials or the best use of granular materials in their project.

- Dr. Paul Dolan

IJAS State Exposition

Accommodations for 75 exhibitors and symposium presenters to attend the IJAS State Exposition.

- Monique Murray
- Juanita (Nini) Paulinski

IJAS Essay Finalists

One first place cash award of \$250, one second place cash award of \$125, one third place cash award of \$75, and one fourth place award of \$50.

- Jennifer Patush
- Jacqueline Di Lorenzo

Illinois Speech-Language-Hearing Association

Two \$100 cash awards to projects related to communication disorder science.

- Denise Prohaska

Intel Excellence in Computer Science Award

One "Excellence in Computer Science" Award to an outstanding high school exhibitor who has a project in the category of Computer Science

- Society for Science and the Public

Janice Lemar Brown Memorial Female in STEM Award

One \$50 cash award to a female exhibitor whose exhibit is in Science or Math.

- Vivian Brown

Janice Lemar Brown Women In Mathematics Award

One \$50 cash award to an outstanding minority female Mathematics exhibitor.

- Vivian Brown

Kathryn Peecher Memorial Award

Two \$25 cash awards to outstanding elementary school exhibitors.

- Marie Clouston
- Amanda Scampini

Language for Scholars-Coaching Scholarship

Four 4-hour speech and learning training scholarships (value at \$500)

- Gregory Moses

LoEva Reid Award

Two \$50 cash awards to outstanding middle school exhibitors.

- Leon Williams
- Fred Williams

Luba Johnson Science Award

Two \$50 cash awards to outstanding exhibitors.

- Luba Johnson

Lula Mae Pruitt Award

Two \$50 cash awards to outstanding middle school exhibitors.

- Leon Williams
- Fred Williams

Marie Sklodowska-Curie Award

Four \$25 gift cards to outstanding projects in Physics and Chemistry.

- Barbara Dubielak-Wood

McGraw Hill School Education Group

Six \$50 cash awards to outstanding exhibitors.

- Ardena White

Metropolitan Water Reclamation District

Twenty-five award certificates will be given to outstanding student exhibitors in the category of Environmental Science. Exhibitors and their parents will attend a special Board Meeting at the Metropolitan Water Reclamation District of Greater Chicago, take a boat tour on the Chicago River and Lake Michigan and served a lunch.

- Mary Carroll

Morton Suggestion Company

A 2016 souvenir pencil to each exhibitor, symposium and essay participant, as well as, each 6th grade recognition attendee.

- Morton Suggestions, Scott Kouri

Mu Alpha Theta

One certificate to a high school exhibitor creatively using modern mathematics.

- Kay Weiss

Murff Mathematical Merit Award

Two \$50 cash awards to outstanding exhibitors.

- Rickey Murff



Special Awards

Museum of Science and Industry

A MSI family membership to exhibitors chosen to go to IJAS.

- Julie Boyk

NASA Earth System Science Award

One certificate awarded to one student whose project offers the greatest insight into Earth's interconnected systems

- Society for Science and the Public

National Oceanic & Atmospheric Administration

One award and medallion to an exhibitor that has focused on one of the following topics: ecosystems, climate, weather/water and commerce/transportation.

- Society for Science and the Public

National Technical Association

One \$50 cash award to an outstanding exhibitor.

- Melvin Slater
- Cynthia Slater

Omega Psi Phi Fraternity, Inc. - Iota Chapter

A \$50 cash awards to fourteen Outstanding exhibitors.

- | | |
|-------------------|-----------------|
| • Melvin Slater | • Ron Wright |
| • Melvin Hargrett | • Andre Garner |
| • Clayton Harris | • Jerrold DeRon |
| • Reggie Smith | • Joe Jackson |
| • Richard Keller | • Marco Johnson |
| • Rick Williams | |

Optical Society of Chicago

One \$100 cash award for an outstanding project about or using light, optics or color.

- George Magerl

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

A \$233 cash award to an outstanding work of research in mathematics.

- The Fogelson Family Foundation, Bruce Fogelson

President's Award- CPS Student Science Fair, Inc.

One \$500 cash award to the top scoring middle school exhibitor. One \$500 cash award to the top scoring high school exhibitor.

- Dr. Debra Sutkowski

QED Prizes for Distinguished Mathematical Research by The Fogelson Family Foundation

Four \$127 cash awards to distinguished works of mathematical research.

- The Fogelson Family Foundation, Bruce Fogelson

QED Prizes for Outstanding Research in Mathematics and Related Sciences Award by The Fogelson Family Foundation

Five \$179 cash awards to outstanding works of research in pure mathematics, applied mathematics, mathematics in engineering, mathematics in computer-related sciences and to a work demonstrating excep-

tional mathematical insight.

- The Fogelson Family Foundation, Bruce Fogelson

Ricoh Sustainable Development Award

One award certificate to an exhibitor that has best reflected the principles of sustainability- balancing economic development with environmental responsibility.

- Society for Science and the Public

Rochelle Hawes Bolton - Award of Excellence

Four \$25 cash awards to exemplary exhibitors in the areas of Health Science, Material Science, Botany, or Zoology and 20 certificates to outstanding exhibitors

- Deborah Hawes

Science Enterprise Award

Ten \$50 cash awards to elementary exhibitors showing exemplary initiative and determination.

- Gary Morrissey
- Susan Morrissey

Science Merit Award

A \$50 cash award to an outstanding high school exhibitor in behavioral science, environmental science, chemistry, or physics.

- Rita Nelson
- RyAnn Nelson -Jaiyesimi

Scope Shoppe, Inc.

One field microscope and case to an outstanding middle school exhibitor.

- Patrick Schlinder
- Jack McKenna

The Seward Elementary Science Award

Visa gift cards totaling \$350 to a project presented by Seward Elementary School students.

- The Seward Staff

Shirley Davis-Morrissey Memorial Teacher Award

A \$250 cash awards to a teacher sponsor who have successfully demonstrated outstanding leadership and educational mentorship to students exhibiting at CPS Student Science Fair.

- Gary Morrissey
- Brittany Davis

Slater Association

One \$50 cash award to an outstanding exhibitor.

- Melvin Slater
- Cynthia Slater

Society for In Vitro Biology

Recognition for an outstanding 11th grade student exhibiting in areas of plant or animal in vitro biology or tissue culture

- Society for Science and the Public

Society of Tribiologists and Lubrication Engineering

Four \$50 cash awards to outstanding projects relating to lubrication or friction.

- Russell Turay



Special Awards

Special Awards for Mathematical Investigation - by The Fogelson Family Foundation

Three \$73 cash awards, and two \$31 cash awards to promising mathematical investigations.

- The Fogelson Family Foundation, Bruce Fogelson

SPIE-- The Intl Society for Optical Engineering

Special recognition to projects relating to using light, optics or color: 1st Place \$200 cash award, 2nd Place \$150 cash award, 3rd Place \$100 cash award

- George Magerl

Stockholm Junior Water Prize

Six certificates to exemplary high school water related exhibits and eligibility to participate in the Stockholm Junior Water State Competition.

- Society for Science and the Public

Supporting Mathematical Research Award - by The Fogelson Family Foundation

Three \$194 cash awards to teacher sponsors of high quality mathematical research.

- The Fogelson Family Foundation, Bruce Fogelson

Symposium Award

Cash awards to the top ten scoring projects: One first place cash award of \$250, one second place cash award of \$125, one third place cash award of \$75, one fourth place award of \$50; and \$25 to the other six participants.

- Jennifer Patush
- Jacqueline Di Lorenzo

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

One \$100 cash award presented to an outstanding project in Electronics.

- Tracy Raoul

The National Sorority of Phi Delta Kappa, Inc.

Two \$50 cash awards to science teacher sponsors.

- Shannette Rooks

United States Air Force

A messenger bag, card reader/writer, custom single speaker, and a beta adapter set will be awarded to four outstanding students exhibitors that include Air Force applicability in their investigation.

- Society for Science and the Public

US Metric Association

One award to an exhibitor that has an outstanding project which used the SI Metric system and the measurements 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 5 exemplary high school exhibitors.

- Society for Science and the Public

UOP, A Honeywell Company

Ten cash awards: one \$150, four \$100 and five \$50 cash awards to outstanding exhibitors in the category of chemistry, physics, engineering science or environmental science.

- Willie Morrisette
- Douglas Nafis

Uniting STEM Award

A 2016 souvenir wristband to each exhibitor, symposium and essay participant, as well as, each 6th grade recognition attendee.

- Luba Johnson

Walter and Mary McKinney Award

Two \$50 cash awards to outstanding middle school exhibitors.

- Gina Grant

Melanie Wojtulewicz Award

A messenger bag with Student Science Fair, Inc. logo to each exhibitor, symposium and essay participant, as well as, each 6th grade recognition attendee.

- Melanie Wojtulewicz

Wolfram Research

Complimentary 1-year licenses of "Mathematica for Students" plus a free 1-year subscription to Wolfram/Alpha Pro17 to 17 Outstanding exhibitors.

- Carol Cronin

World Book Encyclopedia Inc.

One copy of World Book Science Year 2014 to all exhibitors that participate in the City Science Fair.

- Mark Willy

Yale Science & Engineering Association

One certificate to an outstanding 11th grade exhibitor 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 to each 6th grade student participant that attends the 6th Grade Luncheon at the City Science Fair.

- Yolanda Del Rio

Young Scientist Award

One \$50 cash award to a high school exhibitor for his/her research endeavors in Biochemistry, Health Science, Microbiology or Zoology.

- Rita Nelson
- RyAnn Nelson -Jaiyesimi

Special Awards





CPS Student Science Fair 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 science projects and are in need of more expensive materials and equipment in order to continue their research. Students must apply to the Research Grants Committee of CPS Student Science Fair, Inc. and, if accepted, must present their work at an interview with members of this committee. An application can be found in the current *Science Fair Handbook* and on the Internet at: www.cpsscifair.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 *Science Fair Handbook* and on the Internet at: www.cpsscifair.org.

Science Fair Central – workshops for student research

Northeastern Illinois University (NEIU), Chicago State University (CSU), and Illinois Institute of Technology (IIT) opened labs in their science buildings on Saturday mornings this past September and October and invited high school and elementary school students, teachers, parents, and mentors to the

campus. NEIU, CSU, and IIT 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.

Science Clubs – after school help from teachers for student research

ComEd, An Exelon Company has continued to provide funding for 20 high school science clubs this school year. The primary objective is to compensate teacher-sponsors for guiding students as they developed science fair projects. Club sponsors receive money to purchase supplies, materials, and/or equipment for conducting club activities. Peoples Gas provided funding for 16 middle school science clubs this school year. In addition to stipends, teachers were able to help students collect data by using Vernier *LabQuest*, which brought more technology into the classroom. These clubs also have engineers from Peoples Gas who volunteer to advise club members on their science research.

Scholarships – college funds for science fair alumni

In order to support the CPS Student Science Fair and to encourage students to consider careers in science, 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 science fair (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 Science Fair representatives, business and education, selects scholarship recipients on the basis of participation in the Chicago Public Schools Science Fair, scholastic achievement, future goals, and personal interviews. Since 1956, CPS Student Science Fair Inc. has awarded 2,069 scholarships valued at \$3,434,902 to students from 75 Chicago public high schools.



2015 Scholarship Winners

Any prospective June CPS high school graduate who has participated in CPS science fairs (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 Science Fair, scholastic achievement, future goals, and personal interviews.

The June 2015 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 2,069 scholarships, valued at \$3,434,902 to students from 75 Chicago public high schools



Sebastian Augusthy/Kenwood
University of Illinois at Chicago
Honors College
Computer Engineering
University of Illinois at Chicago
Honors College; 4-Yr Renewable,
Full-Tuition Waiver,
\$12,000 Yr



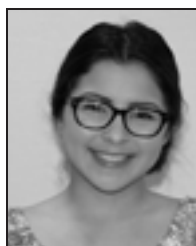
Amber Fang/Curie
Knox College
Biochemistry
Geri Blakley Memorial Scholarship,
\$1,500



Wesley Chan/Payton CP
Northwestern University
Material Science/Engineering
Ray Readus Memorial Scholarship,
\$1,000



David Fajardo/Phoenix M.A.
University of Illinois Urbana-
Champaign
Environmental Science
ComEd, An Exelon Co., \$3,000 and
Tom Maloney Memorial,
\$1,000



Emily Conde/Von Steuben
University of Wisconsin-Madison
Environmental Science
Mary Nalbandian Scholarship,
\$5,000



Brooke Gardner/Payton CP
Georgia Tech
Engineering
Mary Boettcher Scholarship,
\$1,000 and Science Fair, Inc.,
\$500



Kristina Echols/Morgan Park
Spelman College
Sports Medicine/Physician
Barbara Bulmash Memorial
Scholarship,
\$1,500



Yadid Gutierrez-Huerta/Curie
Illinois Institute of Technology
Computer Engineering
Illinois Institute of Technology,
4-Yr Renewable,
\$4,000/Yr



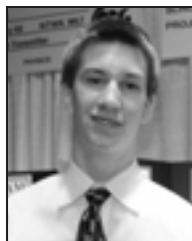
2015 Scholarship Winners



Amina Hadzic/Amundsen
DePaul University
Biology/Neuroscience
Charles Lange Memorial
Scholarship,
\$3,000



Omobolaji Opakunle/Lindblom
DePaul University
Biological Science/Pre-Med
DePaul University, 4-Yr Renewable,
\$8,000/Yr



Bennett Hensey/Kenwood
Northwestern University
Materials Science
Motorola Solutions Foundation,
\$3,000 and Science Fair, Inc.,
\$500



Alexander Pei/Young
Boston University
Biomedical Engineering
Takeda Pharmaceuticals
International, Inc.,
\$10,000



Martin Jastrzebski/Young
University of Illinois at Chicago
Honors College
Biochemistry
Takeda Pharmaceuticals
International, Inc., \$5,000 and
Marlene Sutkowski Memorial
Scholarship,
\$2,000



Marcelina Puc/Lane
Columbia University
Biochemistry
Takeda Pharmaceuticals
International, Inc.,
\$10,000



Michael Kolanowski/Lincoln
Park
Grinnell College
Pre-Medicine
Barbara McCormick Memorial
Scholarship,
\$1,000



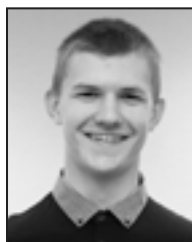
Stevie Rodriguez/Jones
DePaul University
Health Sciences
William and Lorraine Meyer
Memorial Scholarship,
\$2,000



Stacy Lam/Von Steuben
Trinity College
Biomedical Engineering
BP America Inc., \$3,000 and
Science Fair, Inc.,
\$500



Bushraa Shamshuddin/Lane
DePaul University
Health Sciences
Harold Keihm Memorial
Scholarship,
\$2,000



Arpad Neale/Lane
Johns Hopkins University
Environmental Engineering
Allen Nelson Memorial Scholarship,
\$2,000 Barbara McCormick Memorial
Scholarship,
\$1,000



Ahmed Shuaibi/Payton CP
Stanford University
Mechanical Engineering
Blum-Kovler Foundation,
\$1,000 and Science Fair, Inc.,
\$500



Leah Wallace/Northside
University of Chicago
Cellular & Molecular Biology
University of Chicago 4-Yr Renewable
Tuition Waiver, \$2,000/Yr



Peter Williamson/Payton CP
Yale University
Electrical Engineering
Zebra Technologies Earn Your Stripes
for Science Scholarship, \$2,500



Claire-Wen Walsh/Young
University of Alabama Engineering
Honors College
Mechanical Engineering
Dolores Rosenbaum Memorial
Scholarship, \$2,500 and Chicago
Teachers Union, \$500



Hugh Yeh/Lane
University of Illinois Urbana-
Champaign
Biomedical Engineer
Takeda Pharmaceuticals
International, Inc., \$5,000 and Ira Sax
Memorial Scholarship, \$1,000

2015 Senior Recognition Awards

The following Chicago public school seniors are recognized for their participation in the CPS Student Science Fair program. Each senior will receive a \$500 cash award upon submitting proof of enrollment in a college/university in the fall of 2015.



Terrance Black/
Julian
Western Illinois
University
Broadcast
Technology



Octavia Coaks/
Lindblom
University of
Illinois at Chicago
Forensic Science



Ariba Naeem/
Amundsen
University of
Illinois
Biology/Pre-Med



Jose Padilla/
Payton
MIT
Mechanical
Engineering



Paul Pagos/
Lane
University of
Illinois
Chemical
Engineering



**Crystal
Stonewall**/CHAS
University of
Wisconsin-Madison
- Biology



Sharjeel Sohail/
Amundsen
Illinois Institute
of Technology -
Computer Science



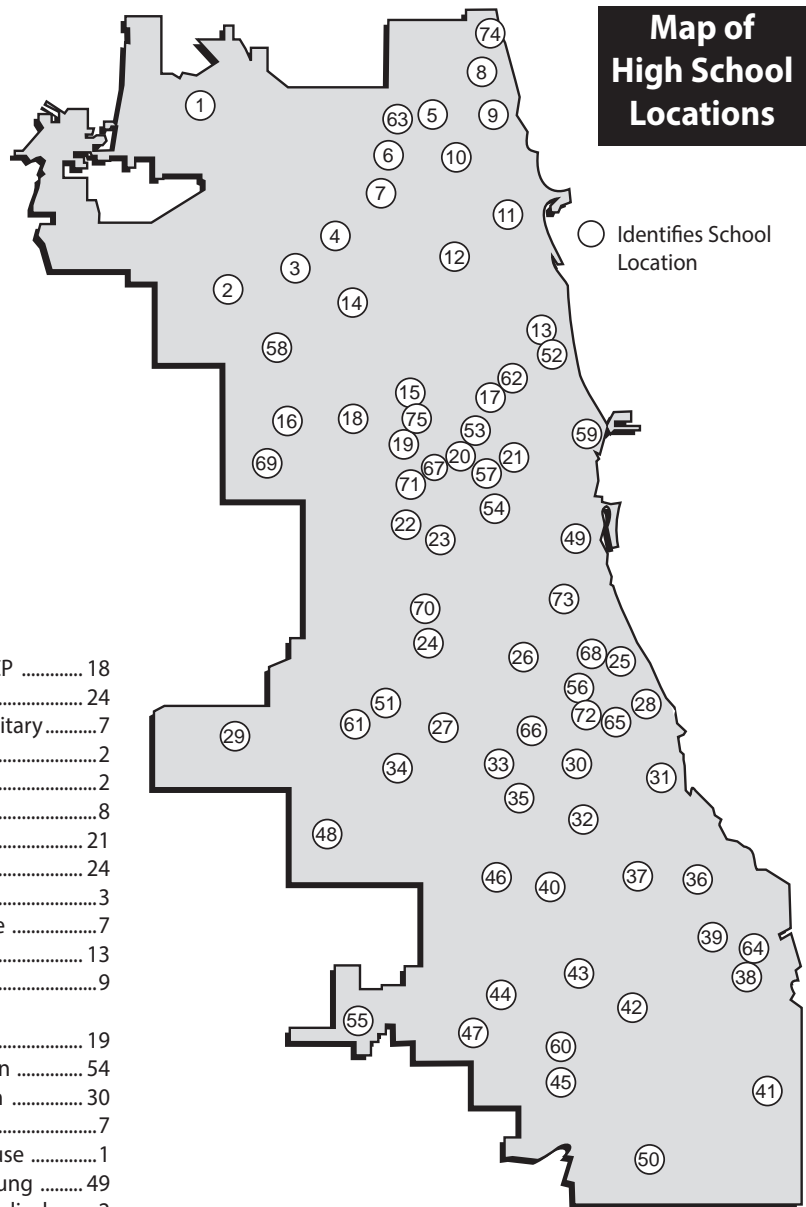
**CHICAGO PUBLIC SCHOOLS
STUDENT SCIENCE FAIR, INC.**



Number of Scholarships Awarded (1956 – 2015)

Map no. School Scholarships

73	Air Force Academy	.....1
10	Amundsen	.....39
16	Austin	.....8
64	BEST	.....1
57	Best Practice	.....1
48	Bogan	.....28
38	Bowen	.....15
68	Bronzeville	.....1
60	Brooks	.....3
46	Calumet	.....4
50	Carver	.....6
69	Chicago Academy	.....1
55	Chicago Ag. Sci.	.....47
74	Chicago Math and Science Academy	.....1
39	Chicago Voc.	.....7
15	Clemente	.....1
42	Corliss	.....11
20	Crane	.....1
53	Cregier	.....2
51	Curie	.....17
49	Dunbar	.....1
56	DuSable	.....3
65	Dyett	.....1
30	Englewood	.....4
22	Farragut	.....4
45	Fenger	.....14
18	Flower	.....1
03	Foreman	.....24
27	Gage Park	.....4
61	Hancock	.....4
43	Harlan	.....5
35	Harper	.....4
23	Harrison	.....4
37	Hirsch	.....5
66	Hope	.....3
34	Hubbard	.....17
31	Hyde Park	.....16
59	Jones	.....5
54	Juarez	.....5
44	Julian	.....7
24	Kelly	.....11
14	Kelvyn Park	.....13
29	Kennedy	.....14
28	Kenwood	.....18
25	King CP	.....7
11	Lake View	.....14
12	Lane	.....122
13	Lincoln Park	.....122
33	Lindblom	.....25
19	Marshall	.....2
71	Manley	.....1
05	Mather	.....28
47	Morgan Park	.....23
52	Near North	.....2
63	Northside CP	.....18
62	Payton	.....24
67	Phoenix Military	.....7
58	Prosser	.....2
32	Robeson	.....2
07	Roosevelt	.....8
04	Schurz	.....21
09	Senn	.....24
40	Simeon	.....3
36	South Shore	.....7
02	Steinmetz	.....13
08	Sullivan	.....9
01	Taft 21	.....
26	Tilden	.....19
06	Von Steuben	.....54
41	Washington	.....30
17	Wells	.....7
75	Westinghouse	.....1
21	Whitney Young	.....49
72	Williams Medical	.....2
70	World Language	.....2





ComEd High School Science Club Program 2015-2016

The following high schools have approved after-school science clubs sponsored by ComEd, An Exelon Company. Each club is provided with a stipend for the club sponsor and received science materials which included a Solar Water Heating Kit, Biotechnology Using Bioluminescent Proteins Kit and DNA Damage: Studying the Impact of UV Light. Education Kit. The primary objective of the ComEd Science Club Program is to provide extended science experiences and guidance to students interested in developing science fair projects.

Amundsen

Eman Sarhan

Bogan/Hubbard

Jacqueline Di Lorenzo

Brooks

Aurora Tyagi

Carver Military

Jamiu Sokoya

Chicago Ag

Daniel Martin

Curie

Neshell Graham

Hanock

Jennifer Stites

Harper

Donna Larrieu

Hope

Jeanettra Watkins

Juarez

Brankica Pulia

Julian

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Lane Tech

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Lindblom

Elizabeth Copper

Marine Leadership

Academy

Monica Gomez

Marshall

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Morgan Park

Aviva Theen

Payton

Walter Kinderman

Phoenix

Beatrice Jaji

RTC Medical

Preparatory

Jennifer McQuade

Young, W

Todd Katz





Peoples Gas Middle School Science Club Program

2015-2016

The following elementary schools have approved after-school science clubs sponsored by Peoples Gas. Each club was provided with a stipend for the club sponsor and incorporated technology using Vernier LabQuest in collecting data for analysis. Giving students the knowledge and experience of using technology 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 Science Club Program was to provide guidance to students interested in developing science fair projects and using LabQuest for data collection

Bateman

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Cullen

Pamela Mayweathers

Edwards

Matthew Moline

Frazier

Theresa Calderon

Galileo Scholastic

Jessica Garcia

Hernandez

Rosario Canizales

Kilmer

Zijada Cobovic

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Annyvette Castro

Owen Scholastic

Shevinna Sims

Parker Community

LaTanya A. Waters

Ruggles

Adayo Moton

Sawyer

Michelle Chavez

Von Linne

Robert Troher

Waters

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Wildwood World

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Peoples Gas Engineers

Kopsombut Akkaravuth

Roberto Arroyo

Owen Farrow

Minerva Huston

Michael Jang

Lucas Johnston

Colton Knox

Matthew Levy

Sathesh Makayee

Zachary Moore

Heta Panchal

Brian Rafferty

Evan Rosendahl

Shrikant Sha

Michael Schmitt

Wilson Mantilla

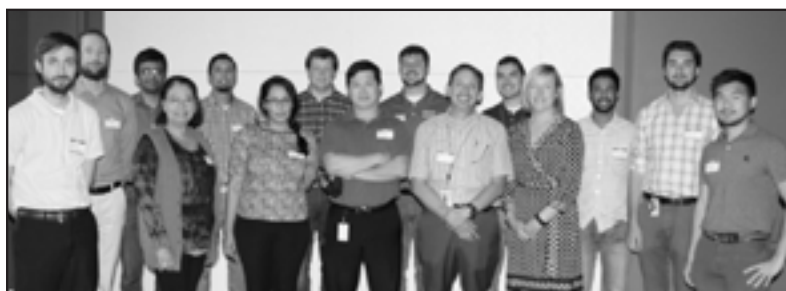
Manager, Fields Operations

Mary H. Houpt

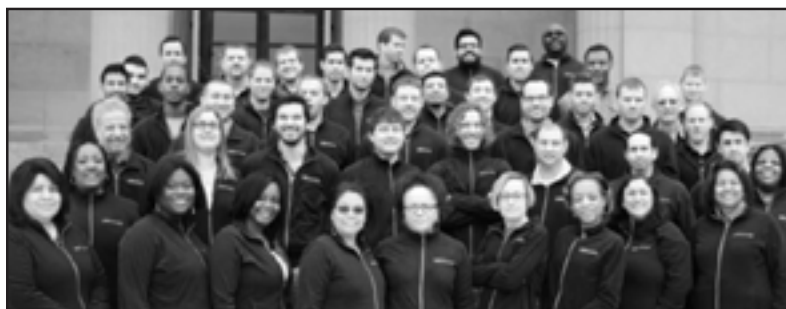
Manager, Community Partnerships



2015-2016 Peoples Gas Middle School Science Club teachers.



2015-2016 Peoples Gas Middle School Science Club participating engineers.

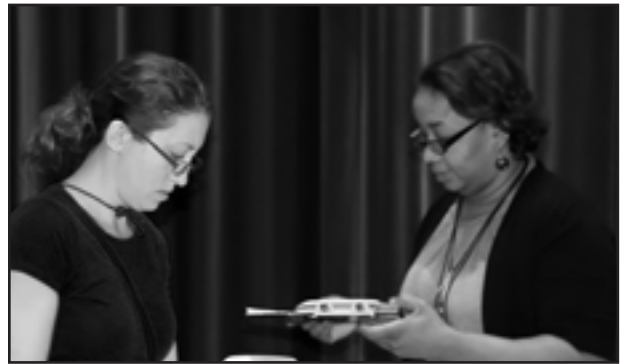


Peoples Gas Engineers supporting Student Science Fair as judges.



Science Fair Volunteers

On the following pages are the pictures and names of almost 1300 people who give of their own time and of themselves to make the CPS Student Science Fair possible. **THANK YOU!**



THANK YOU



Faces of the Student Science Fair



THANK YOU



Faces of the Student Science Fair



THANK YOU



Faces of the Student Science Fair



THANK YOU



Exhibit Judges

Each year approximately 300 judges from the scientific, academic, and business communities generously donate their time, effort, and expertise in order to objectively and professionally evaluate the most scientifically talented students from the Chicago Public Schools. Science Fair 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.

Science Fair salutes ALL the Exhibit Judges participating in the 66th Annual CPS Student Science Fair.

Thank you and congratulations for a job well done!

Fedor Adarichev
Burns & McDonnell

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Technology Institute

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Emily Yates
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Chawon Yun

Northwestern University Medical School

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Koppers, Inc.

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Cardinal Intellectual Property

Scott Zanoni
Peoples Gas

Chris Zavala
Sargent & Lundy LLC



THANK YOU



Symposium and Essay Readers and Judges

Symposium Readers

The following individuals, in addition to the Symposium Committee, generously volunteered their time and expertise on Saturday, January 23, 2016 to read research and essay papers submitted for evaluation. *Thank you, Symposium Readers!*

Raluca Borbath
Carol Burke
Mary Carroll
Roy Coleman
Yolanda Del Rio
Jacqueline DiLorenzo
Margaret Farr
Stephen Farr
Erin Faulkner
Marlene Gatan

Neshell Graham
Carlos Guerrero
Ethelene Hare
Gordon Henderson
Nina Hike
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Jessie Rucker
Dale Salzman
Dorie Schwartz
Latoyia Shadd
William Sutton
Dianna Uchida
John Walker
Melanie Wojtulewicz

Symposium Judges

The following scientists and engineers volunteered their time and expertise on Thursday, March 17 2016 to act on a panel of judges to select the finalists who will participate in the Illinois Junior Academy of Science Symposium.

Tony Brown
Zebra Technologies
Candido Cabrera
Zebra Technologies
Cynthia Colquitt
U.S. EPA
Jennifer Javier
Zebra Technologies
Newton Ellens
U.S. EPA
Claudia Fonseca
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The City Science Fair 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 science education, encouraging students to engage in independent research and providing those students a public forum to present their work

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WOODSON - U OF C

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YOUNG HS

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The Annual Chicago Public Schools Student Science Fair 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 College and Career Support, the Museum of Science and Industry, and this year's corporate sponsors, BP American Inc., ComEd, An Exelon Company, Motorola Solutions Foundation, Peoples Gas, and Takeda Pharmaceuticals International, Inc., 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 2016 CPS Student Science Fair.

- 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 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 science fairs which give students their first opportunity to present their research to judges
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- Morton Suggestion Company for providing souvenir pencils for each exhibitor and 6th Grade Regional Winners
- Phoenix Military Academy High School JROTC cadets for serving as Color Guard at the Opening Ceremony and Awards Program.

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