

2014 SCIENCE FAIR PROGRAM BOOK

Chicago Public Schools Student Science Fair, Inc.
Presents the 64th Annual Science Fair

Bringing **S**CIENCE **T**ECHNOLOGY **E**NGINEERING **M**ATHEMATICS Home



Museum of Science and Industry, March 20-23, 2014
Symposium presentations March 20, 2014

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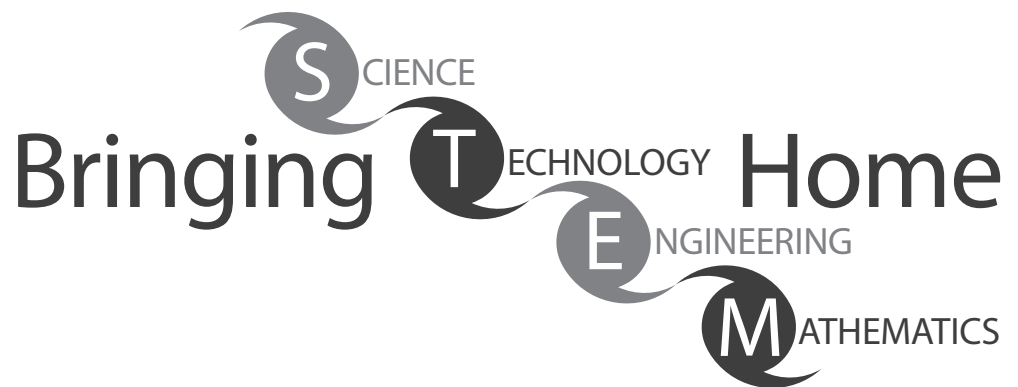
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2014 Science Fair Program Book

64th Annual Chicago Public Schools Student Science Fair



Brought to you by:
Chicago Public Schools Student Science Fair, Inc.

Academic Supporters:
Chicago Public Schools
Office of College and Career Success

Site Host:
Museum of Science and Industry

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Schedule of Events

Thursday, March 20, 2014 – Symposium – details on page 24

9:00 A.M. – 11:30 A.M.	Symposium Morning Sessions (Classrooms 1, 3, and Crime Lab)
11:30 A.M. – 12:45 P.M.	Symposium Luncheon (Columbian Room) - by invitation only

Friday, March 21, 2014 – 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)
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 (Flight Balcony)
12:00 NOON – 1:00 P.M.	Recognition Luncheon (Columbian 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 22, 2014 – Public Viewing and Additional Events – details on page 44

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 (Columbian Room) By invitation only – p. 44
2:00 P.M. – 3:00 P.M.	ComEd Science Club Social (Columbian Room) – by ticket only

Sunday, March 23, 2014 – 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 20 through March 23, 2014, the Chicago Public Schools Student Science Fair, Inc. will sponsor the 64th 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 2014 Student Science Fair follows the theme, *Bringing Science, Technology, Engineering, Mathematics Home*; and

WHEREAS, approximately 300 students from a total of 10,000 participants at the local school and network 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 Northern Illinois University in DeKalb, and four will be sent to the International Science and Engineering Fair in Los Angeles, California; 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 20-23, 2014, 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 10th day of January, 2014.


Mayor



2013 Opening Ceremony

On Friday, March 22nd, the 63rd Annual Chicago Public Schools Student Science Fair opened with corporate and CPS sponsors' greetings, accolades and words of encouragement for the student scientists at this year's fair.



Chairperson Luba Johnson welcomes students, judges, teachers, and dignitaries to the science fair.



Cara Kranz, Deputy Chief of Staff of the Chicago Board of Education, commends students on their research.



They light up the fair with smiles - (left to right) Fidel Marquez, ComEd, Ethelene Hare, CPSSSF, Matthew Blakely, Motorola.



Andy Milnes, BP America Inc., congratulates and encourages science fair participants.



Pyrotechnist Brett Nicholas of the Museum of Science and Industry kicks off the science fair with fire and an earsplitting bang.



Operating Committee Chairpersons: It is their hard work that makes the science fair possible!



About the Chicago Public Schools Student Science Fair (CPSSSF)

About the Fair

We are proud to present the 64th 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 12,000 students enter projects, beginning at the local school level. Local school winners exhibit at the regional level. Approximately 300 winners from 11 Regional 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 25 research paper presentations are delivered at the Illinois Junior Academy of Science (IJAS) State Science Fair. This event is scheduled May 2 and 3, 2014, at Northern Illinois University in DeKalb, 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 Los Angeles, California, May 11-16, 2014.

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 Development Center Americas, 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 science and technology, 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 everyone gathered for the 64th 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 **Bringing Science, Technology, Engineering, Mathematics Home**, 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 of 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.

Dear Students,

The Chicago Public Schools Student Science Fair has been an amazing showcase of student ingenuity and inquiry since its humble beginnings in the early 1950's; and although our board committees, councils, judges, teachers, and volunteers have done an incredible job preparing for the 64th Annual Fair, we all know that YOU—the students—are truly the stars of the show.

Today, we live in a society with a rapidly emerging culture of tinkerers, makers, and innovators who know that developing STEM (Science, Technology, Engineering and Mathematics) related skills is critical for career success. What many of us think is simply a “science fair project” is really a disciplined form of independent research that is guided by a student's genuine interest and thirst for discovery. We are confident that the STEM literacy that you have gained during the design and development of your projects will last a lifetime.

This year's theme, “Bringing STEM Home,” is particularly relevant in our increasingly connected learning environments, as pathways across formal and informal learning spaces becomes the norm. Science fair participants know better than most that STEM is not something to be done just in the classroom. The projects you will display this year are positive proofs that STEM learning is all around us. As you share your scientific insights and mathematical results, your passion for your projects will definitely radiate to both judges and guests. This year's theme is not so much presented as a challenge to be met, but rather as a license for you to also share your discoveries in your home and in your local communities. People should know the great work that you are doing and its potential to address humanity's present and future needs.

The citywide science fair would not be possible without our longstanding partnership with the Chicago Public Schools, and we stand united in fostering new pathways to college and STEM careers for our students. We also want to recognize our hosts, the Museum of Science and Industry, and thank our many funders, corporate sponsors, and individuals for their generous and continued support.

For many of you, your journey would not be possible without the support of the many dedicated teachers, parents, and judges who see the fair not only as a showcase of student talent in STEM, but also as a demonstration of your incredible potential. No matter where your journey through STEM takes you in the future, be sure to bring STEM home!



Christian D. Greer
President, Board of Directors
CPS Student Science Fair, Inc.
Vice President of Learning Initiatives
Chicago Architecture Foundation



Greetings from BP America, Inc. Corporate Sponsor

Greetings!

On behalf of BP, I congratulate you on your participation in the 64th 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 a proud supporter of the 2014 Science Fair. 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 impressive 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. For BP this year's Science Fair theme, "Bringing STEM Home," couldn't be more fitting

Your work demonstrates the importance of scientific inquiry, and will serve you well no matter what career 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

Congratulations to Chicago's next generation of scientists, engineers, mathematicians, and inventors on your participation in the 64th Chicago Public Schools Student Science Fair. ComEd continues to be an energetic supporter of the Science Fair, and we look forward to seeing how students are inspired by this year's theme: *Bringing Science, Technology, Engineering and Mathematics Home*.

At ComEd, we are enthusiastic about our support and investment in educational programs that get students excited about science, math and technology. The Chicago Public Schools Student Science Fair showcases the imaginations and hard work of Chicago students in the sciences. On behalf of everyone at ComEd, good luck in this year's competition. We hope you always continue to explore your potential in the field.

Anne Pramaggiore
President and CEO
ComEd



WELCOME

ComEd[®]
An Exelon Company



Greetings from Motorola Solutions Foundation, Corporate Sponsor

Greetings to All Science Fair Participants:

Congratulations on your participation in the Chicago Public Schools Student Science Fair! I applaud your interest in science and innovation and commend your entry in the 2014 fair. Hard-working students like you demonstrate the potential to make our world a better place.

At Motorola Solutions, we share your passion for innovation and scientific advancement. Motorola Solutions' global team of scientists, engineers and technicians use the scientific process you're demonstrating today to discover and develop new materials, technologies, architectures and algorithms for products that help our customers around the world be their best in the moments that matter.

Motorola Solutions and the Motorola Solutions Foundation are proud to reinforce our commitment to learning. We extend our thanks to your teachers, parents and volunteers who have helped you reach for your potential in making this Science Fair a success.

We challenge you to continue to be your best through science and innovation as our future depends on it.

Best wishes,

Matt Blakely
Director
Motorola Solutions Foundation



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Greetings from Peoples Gas Corporate Sponsor

Welcome and Congratulations!

On behalf of everyone at Peoples Gas, I welcome you to the 64th Annual Chicago Public Schools Student Science Fair. You may 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 want to acknowledge the parents, teachers and staff of Chicago Public Schools. Your support and guidance are an integral part of these students' success.

We offer our congratulations to the more than 13,000 students who entered projects at all levels. It's gratifying to see the display of imagination, creativity and visualization that Chicago Public School students bring to the Science Fair each year. We are proud to support 15 Peoples Gas 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, "Bringing Science, Technology, Engineering & Mathematics Home," is certainly one Peoples Gas can relate to. 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 into your homes and communities. Natural gas is a part of our everyday lives, providing warmth in our furnaces during the cold winter months, flames in our stoves for cooking and hot water for a myriad of uses. Over the next 10 years, our technicians will replace nearly 1,000 miles of natural gas pipes in our natural gas delivery system to ensure its long-term safety and reliability.

Peoples Gas is proud to be a sponsor. It is through partnerships and collaborations like the 64th Annual Chicago Public Schools Students Science Fair where we hope to give students a leg up in their education and in acquiring the values, leadership and interpersonal skills that will help them prepare for life beyond the classroom.



It's our investment in the future.

Willard S. Evans, Jr.
President
Peoples Gas - North

WELCOME

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Greetings from Takeda Development Center Americas, Inc. Corporate Sponsor

Dear Students:

What would the world be like if scientists were not curious? Imagine a world with no computers, no televisions, no electricity and no microwave ovens. This year, the Chicago Public School Students Science Fair celebrates "Bringing Science, Technology, Engineering, and Mathematics Home" and it is the curiosity and achievement on display at the 2014 fair that make Chicago a hometown you can each be proud of.

At Takeda, we also celebrate curiosity. It is what drives us to develop innovative medicines that improve lives around the world. We are constantly striving toward better health for patients worldwide, and science makes it possible. The future depends on great scientists like you continuing to lead the charge.

We are thrilled to sponsor Chicago Public Schools Student Science Fair once again this year with scholarships for outstanding students. Our hope is that you will continue seeking answers through education in the health sciences. This is an investment in you as health innovators of tomorrow.

Good luck to you all and thank you to all the teachers, parents and volunteers who have given their time and dedication to support you in satisfying your global curiosity and achieving your potential.

Best Wishes,

Stuart Dollow, MD
Regional Head, Takeda Development Center
Americas, 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. The hundreds of projects on display demonstrate such innovative thinking that I see it as a sign of a bright future for STEM careers.

All of us at MSI 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.

For 64 years, Chicago's young scientists and inventors have displayed their ideas at MSI where they've been seen not only by judges and family members but also by guests who visit the Museum on science fair weekend. These students are showing people that science is fun, teaching them that science is all around them, and inspiring them 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 efforts, like that of the science fair, aim to inspire today's students to become tomorrow's scientists. We know that science and technology are so critical to our well-being, our nation's economic growth, and our environment. Scientific discoveries will help us overcome challenges like climate change, energy, health, security and hunger.

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. We're working to achieve this vision through our Center for the Advancement of Science Education, which reaches out to students, teachers, communities and schools with innovative programs designed to get students excited about science.

Good luck to all the participants. We hope that you continue to find inspiration in the world around you, and I look forward to seeing the concepts and innovations yet to come from all of you.



Best wishes,

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



museum of
science+industry
chicago



Greetings from the Chicago Public Schools Chief Executive Officer

Dear participants and attendees:

On behalf of the Chicago Public Schools, I welcome all students, teachers, parents, volunteers and guests to the 64th Annual City Science Fair.

First, and most importantly, I want to address our students, who have worked arduously throughout the year to prepare for the Science Fair exhibitions. Students have engaged in their projects with great professionalism and knowledge and it has not been without months of research and analysis, which are critical skills for successful Science Fair projects. Given the national and local emphasis on growing the fields of science, technology, and mathematics, your participation in the Science Fair is a positive step toward preparing you for these fields.

Secondly, I thank Science teachers for their passion and commitment —two qualities that are essential to the success and effectiveness of the program in schools. With their support, our students hone their analytical skills, becoming powerful thinkers, who will be prepared for their future majors and careers.

Lastly, but not least, I appreciate the support of all the generous contributions the Science Fair has received this year. I also thank the CPS Student Science Fair, Inc. for their invaluable partnership and to all of the volunteers present today.

Congratulations to everyone and I wish you the best!

Sincerely,

Barbara Byrd-Bennett,
Chief Executive Officer
Chicago Public Schools



CHICAGO
PUBLIC
SCHOOLS

CPS



Greetings from the Chicago Public Schools Chief Officer, College & Career Success

*Dear Science Fair Participants,
Teachers, Supporters and
Volunteers,*

On behalf of the Office of College and Career Success, I would like to congratulate the participants and teachers and acknowledge our contributing partners in the 64th Annual City Science Fair.

Participants, you have spent countless hours preparing throughout the school year and as a result of your commitment and perseverance, you have earned the honor of presenting your projects and representing your schools in this year's City Science Fair. I wish you the best of luck as you pursue your educational and career goals and encourage you to continue to develop the valuable skills you have gained in science. Those skills will help you thrive in your next steps in life and into your future.

Teachers, thank you for your dedication to our phenomenal students in Chicago and for taking the time to prepare your students for the Science Fair. The program is a huge success and allows students to showcase their creativity, critical thinking ability and research skills, all of which will help students succeed in high school, college and in their careers. Your presence today speaks volumes to your abilities as teachers and to the commitment you have to your students.

Supporters and volunteers, thank you for investing in Chicago Public School students through the generous donation of time and/or funding for this culminating event. The 64th Annual City Science Fair would not be possible without committed donors, partners, and volunteers.

To our partners at the CPS Student Science Fair, Inc., we are grateful your support and collaboration in assisting with the continued success of Science Fair and STEM.



Congratulations to everyone participating today.

Sincerely,

Aarti Dhupelia
Chief Officer, College and Career Success



Greetings Greetings from the Executive Director of Student Support and Engagement

Dear Science Fair Participant,

Welcome to the Annual City Science Fair! Today is a special day as students from across the city participate in this exciting event. Science Fair is a program with both national and international recognition that has a community of participants across the world. Students should all be proud of their participation in such a highly regarded program. In Student Support and Engagement, we are certainly proud of the hard work and commitment of all our Science Fair participants.

As the Executive Director of Student Support and Engagement, I am thrilled to learn that so many students from across the city are benefiting from their participation in the Science Fair program. Participation in Science Fair improves students' academic skills, which are critical to the future success of students. As students design and create their Science projects, they are encouraged to research, develop their own work plan, and solve complex problems throughout the process. These types of skills are essential in the new economy and will give you an edge in college and when entering the world of work.

I wish all Science Fair participants the best in this engaging City Science Fair. I also extend my best wishes to parents and teachers who have supported students in building their projects. I hope everyone enjoys the fair and, again, extend congratulations to all participating in this great event.

Sincerely,

Michael Seelig, Ed. D
Executive Director
Student Support and Engagement



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CPS



Greetings from the CPS Manager, Academic Competitions

I am proud to welcome students, teachers, volunteers, and staff to the 64th Annual City Science Fair! Most of all, I congratulate 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 their 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. partners 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 City Science Fair.

Best Regards,

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





Greetings from Student Science Fair, Inc. Chairperson

Our theme of **Bringing Science, Technology, Engineering and Mathematics Home** can definitely be celebrated as I welcome over 300 students from Chicago Public Schools (CPS) to the 64th Annual Student Science Fair. You have accomplished a level of excellence in your independent research and are present today to exhibit your interest and dedication to the study of science, technology, engineering and mathematics (STEM). You are the young men and women of the future, you are our hope for better things to come. Discoveries are waiting to be made and global innovations are waiting to be put forth. By using your knowledge in STEM it opens up opportunities for you to bring great discoveries and innovations to reality for everyone in the world. But as a one senior commented during her scholarship interview - I did my project using what I had in my yard because I wanted to bring science to my home. This statement is so profound and was the basis for our theme this year. STEM is all around us, we cannot live without it. Your continued studies in this field will only lead to greater discoveries which will benefit all of us: in our Country, our State, our City, our Community – our **HOME**.

I would like to express my sincere appreciation to all the teachers, parents, volunteers and institutions that have assisted these young people with their pursuit in completing an experimental or design project. Your efforts and support have motivated these students to obtain high confidence levels and bring them to this level of success. Thank you.

As we celebrate the students over the next three day and enjoy the events at this great location (Museum of Science and Industry) our financial supporters must be recognized and thanked. Today we witness how financial support has helped bring talented youth together to showcase their scientific research, inventions, engineering designs, technological development and mathematical problem solving. My sincere gratitude goes 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 Development Center Americas, Inc. for their continual support and dedication to science fair. A thank you goes out to all our individual supporters, as well. Your generous contributions have provided many valuable learning opportunities, as well as to the success of this event today. Lastly, thank you to our academic supporter – Chicago Public Schools and our site host – Museum of Science and Industry.

This year I have the privilege of serving as the Interim Executive Director of the Chicago Public Schools Student Science Fair, Inc. Many of you may not know, but we are



a nonprofit organization that has proudly sponsored the Student Science Fair for 64 years. Our main purpose is to showcase the independent work of CPS students in STEM by creating an atmosphere where the best can exhibit, be judged by professionals in STEM fields and have the opportunity to move forward and exhibit at the State Science Fair as well as the International Science Fair. We have seen great works and accomplishments from students of Chicago Public Schools and all of us at CPS Student Science Fair, Inc. are proud of you!

Again, congratulations to all participants and to all that have contributed to the success of this 64th Student Science Fair. I encourage all of you to be advocates for science, technology, engineering and mathematics education in our schools. This way we definitely will **Bring STEM Home**.

To everyone - enjoy the science fair!

Luba Johnson
2014 Student Science Fair Chairperson
Interim Executive Director
Chicago Public Schools Student Science Fair, Inc.



CHICAGO PUBLIC SCHOOLS
STUDENT SCIENCE FAIR

We welcome Peoples Gas
as a corporate sponsor
to Chicago Public Schools Student
Science Fair, Inc.

We appreciate your support and
efforts in expanding science,
technology, engineering
and mathematics for the
students of Chicago.

PEOPLES GAS
NATURAL GAS DELIVERY

An Integrys Energy Group Company



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 Development Center Americas, 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.

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



Contributors

To all of those who contributed to the operating and scholarship funds, we offer a very special THANK YOU for helping make the 2014 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

Site Sponsor

- Museum of Science and Industry

Corporate Sponsor – \$25,000 Minimum

- BP America, Inc..
- ComEd., An Exelon Co.
- Motorola Solutions Foundation
- Peoples Gas

Executive Circle - \$5,000 Minimum

- Baxter International, Inc.
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Angels - \$1,000 Minimum

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- Luba Johnson
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- Ethelene Hare
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- Naylor Pipe Company
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Scholarship Fund

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.

Benefactors of Academic Scholarships

- DePaul University
- Loyola University
- Northeastern Illinois University
- University of Chicago
- University of Illinois at Chicago

Corporate Sponsor – \$25,000 Minimum

- Takeda Development Center Americas, Inc.

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- Roy Coleman & Dianna Uchida
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- BP America, Inc.
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- Society of Retired Principals & Superintendents of Chicago
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- Deborah Hawes
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- Gail Parke
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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.



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 20, 2014, 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 20, 2014. 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 the Northern Illinois University in DeKalb, Illinois on May 2 and 3, 2014.

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 2014 topic is: *"It's An Ice Day for Science!"*. 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.



2014 Essay Contest Semi-Finalists

Ex#	Student Name	Grade	Network	School	Title
801	Ahsan, Najah	12	NW01	Northside	Managing Ice on an Ice Day
802	Artemakis, Lukia	9	NW11	Whitney Young	Let It Snow
803	Foster, Devin	7	NW11	Lindbolm	Where There's Ice There's Life
804	Gay, Daniel	7	NW11	Lindbolm	Melting Ice Caps
805	Popernik, Noah	10	NW06	Whitney Young	Too Much of A Good Thing Can Be A Bad Thing
806	Quezada, Lizet	12	OS04	Morgan Park	How is Global Warming Affecting Glaciers?
807	Ramirez, Ivanna	12	NW11	Bogan	Snowflake Structure
808	Reddan, Whitney	10	NW06	Whitney Young	Climate Change And the Affects on Moose
809	Stanciel, Ginger	10	NW11	Whitney Young	Water in Our Universe
810	Yeh, Hugh	9	NW04	Lane	Environmental Impact on M. frigidum

* See page 29 for the Network Abbreviation Key



Symposium Schedule

Thursday, March 20, 2014

AM Presentation Schedule

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

ExhStudent Name	Grade	Project Title	School	Category	Network
601 Zhang, Weipeng	12	Colorectal Cancer: VDR Deficiency & Claudin 5	Young	Biochemistry	NW06
602 Velde, Melusine	9	The Effect of pH on Raspberry Decomposition	Lincoln Park	Chemistry	NW04
603 Guterrez, Yadid	11	Extract Remedies	Curie	Health Science	NW08
604 Holcomb, Katie	9	The Great Fruit Juice Contest	Von Steuben	Health Science	NW01
605 Lurye, Samuel	10	Effect of Garlic on Harmful Bacteria	Lincoln Park	Microbiology	NW04
606 Manali, Desai	10	Effect of LB Concentration on E. coli	Lane Tech	Microbiology	NW04
607 Augusthy, Sebastian	11	The Effects of Copper Sulfate on Snails	Kenwood	Zoology	NW09
608 Castro, Alexander	10	The Effect of Aquatic Plants on Daphnia	Lincoln Park	Zoology	NW04

Class 3-Session B 9:00 A.M. - 11:30 A.M.

ExhStudent Name	Grade	Project Title	School	Category	Network
609 McKeegan, Rilla	9	Pine & Steel Framing during Earthquakes	Lane Tech	Engineering Science	NW04
610 Hernandez, Josemanuel	10	Car Exhaust: CO2 Concentration and Air Temp	Curie	Environmental Science	NW08
611 Neale, Arpad	11	Duration of Nitrogen Starvation on C. reinhardtii	Lane Tech	Environmental Science	NW04
612 Alvarez, Lesly	9	Flame-Retardant vs. Safe Homes	Phoenix	Material Science	Military
613 Motwani, Neha	10	Graphene Super Capacitors	Lane Tech	Material Science	NW04
614 Xue, Eric	10	Effects of Temperature on Magnet Strength	Lincoln Park	Material Science	NW04

Crime Lab-Session C 9:00 A.M. - 11:30 A.M.

ExhStudent Name	Grade	Project Title	School	Category	Network
615 Barclay, William	12	Automorphisms in R and in C	Walter Payton	Mathematics	NW06
616 Johnson, Gersham	12	Newton's Method and its Rate of Convergence	Walter Payton	Mathematics	NW06
617 Lu, Lena	12	When is 0.999...not equal to 1?	Lincoln Park	Mathematics	NW04
618 Mine, Alex	12	Combinations of Periodic Functions	Walter Payton	Mathematics	NW06
619 Dallek, Ben	10	The Effect of Color on Distillation Process	Lincoln Park	Physics	NW04
620 DeMastri, John	9	The Affect of Temperature on Electromagnetism	Lincoln Park	Physics	NW04
621 Nash, Geoffrey	12	Optimizing Thermal Energy Storage	Lincoln Park	Physics	NW04
622 Pei, Alexander	11	The Effect of Temperature on PV Arrays	Young	Physics	NW06

* See page 29 for the Network Abbreviation Key

SYMPOSIUM THURSDAY



Symposium & Essay Luncheon Schedule

Thursday, March 20, 2014

Columbian Room – 11:30 A.M.

SYMPOSIUM THURSDAY

Remarks	Luba Johnson Chairperson CPS Student Science Fair, Inc.
Introduction of Special Guest	Nina Hike-Teague Symposium Committee Chairperson
Guest Speaker	Dr. Justin Mohr University of IL at Chicago Asst. Professor, Organic Chemistry
Recognition of Symposium Participants	Nina Hike-Teague
Recognition of Judges (Years of Service)	Nina Hike-Teague Luba Johnson



Essay Finalists



Honoring Frederick & Sharon Korty with Years of Service Award



Symposium Semi-finalists



Luba Johnson, Dr. Teresa Woodruff and Nina-Hike Teague

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 12,000 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. This year 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 64th Annual City-wide Science Fair.

On Friday, March 21, 2014, 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 2 and 3, 2014, on the campus of the Northern Illinois University, DeKalb, Illinois. Students will compete with other students from around the state.

On Saturday, March 22, 2014, 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 11-16, 2014 in Los Angeles, California.

Some of the judges also function as Special Awards judges for the companies that have graciously sent



them to evaluate the exhibitors. Each company may have one or more special criteria, in addition to the established criteria, by which to determine the recipient of its special award. All CPS Student Science Fair participants will be recognized with certificates and souvenirs at the Awards Convocation on Sunday, March 23, 2014, 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

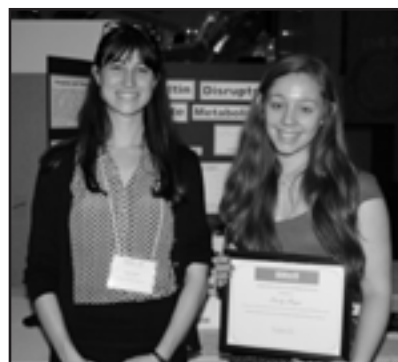




Exhibit Schedule

Friday, March 21, 2014

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
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	Flight Balcony (level 3)
12:00 NOON – 1:30 P.M.	Recognition Luncheon (by Invitation only)	Columbian 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																									
1 E	Potts, Jacques	9	Flight Night	NW11	Lindblom HS																				
2 E	Valencia, Sofia	9	Parachute Design vs. Landing Time	MILT	Phoenix Military HS																				
3 E	Calderon, Vincent	12	The Effect of Wing Flap Size on Flight	OS04	Hancock HS																				
Behavioral Science																									
4 E	Cheung, Suky	7	Training Your Heart	NW06	Skinner																				
4 E	Tang, Rachel	7	Training Your Heart	NW06	Skinner																				
5 E	Ciesil, Christa	7	What's In a Face: Universality of Expressions	NW01	Edgebrook																				
6 E	Dill, Annika	7	Does Chewing Gum Help You Test Better in Math?	NW10	Kinzie																				
7 E	Johnson, Chloe	8	How High or Low Can You Go	NW09	Murray																				
8 E	Huang, Marc	8	Does Music Affect A Person's Ability to Think?	NW06	Skinner																				
8 E	Li, Eric	8	Does Music Affect A Person's Ability to Think?	NW06	Skinner																				
9 E	McCoy, Teonnah	8	Which Sweet Substance Do These Ants Prefer?	AUSL	Bradwell																				
10 E	Nygren, Caitlin	8	Directed Attention Fatigue and Restoration	NW04	Hawthorne																				
11 E	Valenzuela, Adamari	8	How Does Temperature Affect Our Mind?	NW08	Edwards																				
12 D	Coleman, Aaron	9	Why Are Teens Stressed?	NW03	Douglass HS																				
13 E	Escobedo, Marcus	9	Effect of Vinegar on Chicken Bones	CHTR	Catalyst -Maria HS																				
14 E	Holt, Markal	9	Subliminal Messages - Does it Really Work?	NW03	Douglass HS																				
15 E	Mikos, John	9	The Protein Puzzle	NW10	Kennedy HS																				
16 E	Lungu, Kamil	10	A Study on Various Conditioning Patterns	NW04	Lane HS																				
17 E	Mui, Waylan	10	The Effect of Pressure on Mechanoreceptors	NW09	Kenwood HS																				
18 E	Rodriguez, Gustavo	10	Catch It	NW06	Young HS																				
19 E	Urquizo, Alicia	10	Survival of the Fittest	NW03	Steinmetz HS																				
20 E	Black, Terrance	11	Listen to the Music	OS04	Julian HS																				
21 E	Esparza, Xochitl	11	Do Sex and Hand Dominance Impact Memory?	OS04	Juarez HS																				
22 E	Jordan-Zamora, Ariel	11	ADD Brainwave Entrainment	NW04	Lane HS																				
23 E	Lo, Chun	11	Colorful Confusion	MILT	Air Force Military HS																				
24 E	Moore, Isaiah	11	Magic Mnemonics	MILT	Air Force Military HS																				
25 E	Torres, Osmara	11	Gum Effects	MILT	Air Force Military HS																				
26 E	Velazquez, Yessica	11	Time Pressure	MILT	Air Force Military HS																				
27 E	Blackman, Charlotta	12	Behind the Headlines	NW11	Lindblom HS																				
Biochemistry																									
28 E	Gorman, Maya	7	Glucose Levels in Sugary Drinks	NW04	Bell																				
29 E	Pence, Adyn	7	Elect-woah! Lytes	NW04	Audubon																				
30 E	Raoul, Abdel	7	The Effect of CO ₂ on Plant Growth and DNA	NW11	Lindblom																				
31 E	Contreras, Miguel	8	Acid Fight	NW08	Shields																				
32 E	Lynn, Hannah	8	How Sweet Are You?	NW04	Lasalle																				
<table><tr><td>Network (Abbreviation)</td><td>Options (OPTN)</td><td>Network 4 (NW04)</td><td>Network 9 (NW09)</td></tr><tr><td>AUSL (AUSL)</td><td>OS4 (OS04)</td><td>Network 5 (NW05)</td><td>Network 10 (NW10)</td></tr><tr><td>Charter (CHTR)</td><td>Network 1 (NW01)</td><td>Network 6 (NW06)</td><td>Network 11 (NW11)</td></tr><tr><td>Contract (CNTR)</td><td>Network 2 (NW02)</td><td>Network 7 (NW07)</td><td>Network 12 (NW12)</td></tr><tr><td>Military (MILT)</td><td>Network 3 (NW03)</td><td>Network 8 (NW08)</td><td>Network 13 (NW13)</td></tr></table>						Network (Abbreviation)	Options (OPTN)	Network 4 (NW04)	Network 9 (NW09)	AUSL (AUSL)	OS4 (OS04)	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 (MILT)	Network 3 (NW03)	Network 8 (NW08)	Network 13 (NW13)
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Military (MILT)	Network 3 (NW03)	Network 8 (NW08)	Network 13 (NW13)																						



Exhibits by Category

Ex#	Student Name	Grade	Title	Network	School
33 E	Weng, Jackie	8	Livers Alive	NW06	Healy
34 E	Molek, Christopher	9	Which Water is the Most Conductive?	NW10	Kennedy HS
35 E	Herrera, Heidi	11	The Effects of Temperature on Luminol	MILT	Air Force Military HS
36 E	Jastrzebski, Martin	11	How Heat Affects Enzymatic Reactions	NW06	Young HS
37 E	Opakunle, Omobloaji	11	Take A Breath	NW11	Lindblom HS
38 E	Puc, Marcelina	11	Apoptotic Mechanism of Ag & Br on PC12	NW04	Lane HS
39 E	Villatoro, Mynor	11	Say Cheese	NW02	Lake View HS
40 D	Cabada, Jazmin	12	Started From the Bottom Now We Are Here	OS04	Bogan HS
41 E	Garduno, Maria	12	A Day in the Life of a Membrane	OS04	Bogan HS
42 E	Jimenez, Joyce	12	Redworms	NW02	Amundsen HS
43 E	Maldonado, Diana	12	Effects of PbNO ₃ on Enzymatic Reaction Rate	NW02	Amundsen HS
44 E	Mendoza, Jonathan	12	Blue Photosynthesis	OS04	Bogan HS
45 E	Ortega, Jennifer	12	The Effect of Inhibitors on Reaction Rates	NW07	Social Justice HS
46 E	Rosas, Alexa	12	Resveratrol & the EMT Process in Cancer Cells	OS04	Hancock HS
47 E	Shah, Meesam	12	Effect of Temperature on Enzyme Reaction Rate	NW02	Amundsen HS
48 E	Sutton, Jordan	12	Alkalinity of Food: Effects on Digestion	NW04	Lincoln Park HS
49 D	Urquiza, Alicia	12	How Does Photosynthesis React To Color?	OS04	Bogan HS
50 E	Zhang, Weipeng	12	Colorectal Cancer: VDR Deficiency & Claudin 5	NW06	Young HS

Botany

51 E	Fleming, Samantha	7	Radiant Radish Seeds	NW10	Cassell
52 E	Jones, Talisha	7	Exothermic & Endothermic Reactions in Plants	NW12	Madison
53 E	Morales, Mariah	7	Are Energy Drinks Bad for You?	NW10	Dawes
54 E	Sileo, Abigail	7	The Effect of Worms on Plant Growth	NW10	Durkin Park
55 E	Alfonso, Jocelynn	8	Effect of Acid Rain on Plant Growth	NW11	Lenart
56 E	Miranda, Llovizna	8	Effect of Different Waters on Bean Growth	NW08	Edwards
57 E	Morales, Nancy	8	Sprout Out!	NW08	Shields
58 E	Tirado, Fatima	8	The Effect of Auxin on Plant Growth	NW06	Salazar
59 E	Wallenfeldt, Hayley	8	Coffee Grounds Effect in Compost on Radishes	NW04	Lane
60 E	Abarca, Jazmin	9	The Amount of Light and Plant Growth	CHTR	Catalyst -Maria HS
61 E	Bershed, Abeer	9	Effect of Electricity on Plants	NW02	Mather HS
62 E	Calderon, Jesus	9	The Effect of Fertilizer on Germination	NW03	Steinmetz HS
63 E	Chen, Andy	9	Fertilizer vs. Fast Plants	NW06	Young HS
64 E	Ilumin, Raziell	9	The Effects of Fertilizer on Seed Germination	NW03	Steinmetz HS
65 E	Kaufmann, Ian	9	What is the Effect of Microwave Radiation?	NW10	Chicago Agri HS
66 E	Madej, Sylvia	9	Effects of Car Soap on Seed Germination	NW03	Steinmetz HS
67 E	Arteaga, Sandra	10	Effects of Radiation on Plant Life	NW04	Lincoln Park HS
68 E	Cortes, Carlos	10	Effect of Ailanthus Age on Germination	NW09	Kenwood HS
69 E	Emery, Raina	10	Herbicides Effective in Weed Killing	NW10	Chicago Agri HS
70 E	Galowich, Ryan	10	The Effect of Citric Acid on Algae Growth	NW04	Lincoln Park HS
71 E	Hernandez, Elizabeth	11	Do Hydrogel Crystals Help Plants Grow?	NW10	Kennedy HS

* See page 29 for the Network Abbreviation Key



Exhibits by Category

Ex#	Student Name	Grade	Title	Network	School
72 E	Marusarz, Maria	11	Which Pain Reliever Helps Grass Grow Best?	NW10	Kennedy HS
73 E	Onoh, Linda	11	The Effect of Salt on Plant Growth	NW02	Amundsen HS
74 E	Trujillo, Diana	11	Plant Murderer	OS04	Juarez HS
75 E	Choudhry, Ayesha	12	Roses to Take Your Breath Away	NW02	Amundsen HS

Chemistry

76 E	Amal, Taariq	7	The Effect of Temperature on Reaction Time	NW05	Frazier
77 E	Bartels, Brady	7	Poppin' Corn: The Best Way to Store Popcorn	NW10	Keller
78 E	Berghoff, Hallie	7	Insulation Sensation	NW10	Keller
79 E	Boehm, Noah	7	What's in Your Water?	NW06	Jackson A
80 E	Booker, Kuturra	7	Electrolyte Challenge	NW05	Mason
81 E	Bovan, Nadiya	7	The Effect of Hydrogen Peroxide on Human Hair	NW12	Madison
82 E	Cousins, Brycen	7	The Effect of Various Drinks on Electrolytes	NW11	Lindblom
83 E	Drozdz, Claudia	7	Salty Anti-Bubbles	NW01	Edison Park
84 E	Gonzalez, Fatima	7	The Effects of Liquids on Wood	NW13	Gallistel
85 E	Herrera, Hannah	7	What's in Your Water?	NW11	Lenart
86 E	Jackson, Kimani	7	Keeping It Hot!	OS04	Morgan Park HS
87 E	Mallard, Jaily	7	Inked Out	NW11	Lenart
88 E	McDonald, Nicolette	7	Ripening Fruits	NW10	Mt Greenwood
89 E	Redmond, Saboor	7	Does Water Temperature Affect Gas Production?	NW12	Dixon
90 E	Rutherford, Lucy	7	Many Moisturizers	NW10	Cassell
91 E	Spencer, Jackie	7	How Low Can H ₂ O Go?	NW01	Edison
92 E	Nolan, Juliana	8	Rusty Musty Metals	NW05	Cameron
92 E	Arreci, Miriam	8	Rusty Musty Metals	NW05	Cameron
93 E	Bowman, Danye	8	Water Temperature vs. Alka Seltzer	NW11	Evers
94 E	Brantley, Dinah	8	Gluten and Wheat	NW12	Dixon
95 E	Chan, Annie	8	Do You Pre' ph'er Milk?	NW06	Healy
96 E	Chen, Yujing	8	The Inhibitor	NW06	Skinner
96 E	Wu, Emma	8	The Inhibitor	NW06	Skinner
97 E	Cunningham, Imani	8	The Electrolyte Test	NW11	Randolph
98 E	Davis, Cameron	8	Lights! Cameras! Reactions	NW06	Sheridan
99 E	Garklavs, Veronica	8	Fire Retardants: Organic vs. Commercial	NW04	Newberry
100 E	Green, Anastasia	8	Evaporation Transformation	NW05	Cameron
101 E	Hernandez, Marcos	8	Return of the Eggs	NW07	Little Village
102 E	Hernandez, Vanessa	8	Does Storage Temperature Affect Orange Juice?	NW08	Lara
103 E	Hernandez-Salazar, Lourdes	8	Which Decaffeinated Tea Has Less Caffeine?	NW10	Twain
104 E	Jung, Wendy	8	Sugar Rush	NW06	Sheridan
105 E	Leon, Liliana	8	Heat of Reaction	NW10	Byrne
106 E	Lin, Juliana	8	Copper Attraction	NW06	Haines
107 E	Arceo, Carina	8	"C" for Yourself	NW05	Nobel
107 E	Martinez, Litzy	8	"C" for Yourself	NW05	Nobel
108 E	Martinez, Oscar	8	Fire Balloons	NW05	Cameron

* See page 29 for the Network Abbreviation Key



Exhibits by Category

Ex#	Student Name	Grade	Title	Network	School
109 E	Papirnik, Sarah	8	Eat Your Food When You Buy It	NW01	Edgebrook
110 E	Pavilonis, Valerie	8	How Evaporation Affects Heating and Cooling	NW10	Mt Greenwood
111 E	Phung, Alan	8	pH! pH! pH!	NW06	Healy
112 E	Rah, Annah	8	Good Calories, Bad Calories	CHTR	Merit (Chicago Virtual)
113 E	Rodriguez, Rigoberto	8	Electrolyte Challenge	NW10	Dore
114 E	Shimpi, Sofia	8	The Fuel Cycle of the Future: Water Splitting	NW04	Franklin
115 E	Soto, Fernando	8	The Effect of Expanded Polysterene in Acetone	NW11	Fulton
116 E	Tan, Anna	8	Why So Tense?	NW06	Sheridan
117 E	Turner, Amiya	8	Lead Be Gone: Testing Presence of Pb in Items	NW10	Kellogg
118 E	Uruchima, Johnny	8	It's Time to React	NW05	Sabin
119 E	Martinez, Jessica	8	Smokin Boo Bubbles	NW05	Cameron
119 E	Vega, Cency	8	Smokin Boo Bubbles	NW05	Cameron
120 E	Barraza, Ezequiel	9	Bubble Science	MILT	Carver Military HS
121 E	Chappelle, Nakia	9	Corrosiveness of Soda	NW12	South Shore Intl HS
122 E	Magone, Emils	9	Viscosities of Fluid Materials	NW04	Lincoln Park HS
123 E	Milan, Jesse	9	What Effect Does Color Have on Heat?	CHTR	Catalyst -Maria HS
124 E	Zhanay, Aaron	9	How Much Oxygen is in the Air?	NW06	Carpenter
125 E	Bradley, Rayyah	10	See the Vitamin C	NW12	South Shore Intl HS
126 E	Deeb, Rozan	10	Battle of the Electrolytes	NW01	Taft HS
127 E	Jones, Ebony	10	The Onion Test	OS04	Chicago Vocational HS
128 E	Panek, Susan	10	What is the Affect of Phosphoric Acid on Eggs?	NW04	Lincoln Park HS
129 E	Poole, Madeline	10	From the Farms to the Fuels	NW10	Chicago Agri HS
130 E	Varela, Pamela	10	The Effect of Temperatures of Glowsticks	CHTR	Catalyst -Maria HS
131 E	Cochran, Ayana	11	The Vicissitude of Viscosity	MILT	Air Force Military HS
132 E	Glenn, Alexandra	11	Glow Sticks	OS04	Morgan Park HS
133 E	Herrera, Mayra	11	Tracing Caffeine In Tea	NW13	Brooks HS
134 E	Kimmel, Krystal	11	Turn Milk into Plastic	NW02	Lake View HS
135 E	Lam, Stacy	11	Go Green, Go Friendly, Go Biodiesel	NW01	Von Steuben HS
136 E	Li, Alex	11	How Much Energy Do Our Snacks Give Us?	NW08	Curie HS
137 E	Razo, Hernan	11	Isomerization of Maleic Acid to Fumaric Acid	CHTR	Henry Ford
138 E	Tran, Nicholas	11	Iron in Fruits	NW02	Lake View HS
139 E	Fransual, Guillermo	12	What is the Percent of Copper in Brass?	NW02	Amundsen HS
140 E	Massolle, Stephanie	12	A Perk of the Pepper	NW10	Chicago Agri HS
141 E	Moncivais, Stephanie	12	Use of Quinoa on Product Development	NW10	Chicago Agri HS
Computer Science					
142 D	Villevald, Katia	10	Optimizing Traffic Lights	NW06	Young HS
143 D	Zhang, Guochuan	10	Evolving Quantum Gomoku Engines	NW04	Lane HS
144 E	Portis, Tyler	11	Hiding in Plain Sight	NW13	Brooks HS
145 D	Raymundo, Isabel	12	The Changing Computer Mind	NW11	Lindblom HS

* See page 29 for the Network Abbreviation Key



Exhibits by Category

Ex#	Student Name	Grade	Title	Network	School
Earth Science					
146 E	Thomas, Devin	8	Vermiculite vs. Perlite	NW04	Nettelhorst
147 E	Machuca, Connie	10	The Effect of Redworms on Soil & Water Run-Off	NW04	Lane HS
148 E	Echols, Kristina	11	Limestone No More	OS04	Morgan Park HS
Electronics					
149 E	Altenbach, Isabella	8	Generate It!	NW01	Ebinger
150 E	Bradley, Louis	8	Conductors of Electricity	NW05	Mason
151 E	Chan, Wesley	11	Different Technologies of Photovoltaic Cells	NW06	Payton HS
152 D	Liu, Zong	11	Self-Powered Slar Tracker	NW06	Young HS
Engineering Science					
153 E	Kinds, Deanna	12	Segway Stability	OS04	Morgan Park HS
154 E	Iniguez, Gisselle	7	Solar Savior: Solar Powered Water Desalination	NW08	Columbia Explorers
155 E	Rivera, Lorenzo	7	Weight Until You Hear This!	NW10	Lee
156 E	Cook, Tyrese	8	Electrochemical Batteries	OS04	Crown
157 E	Cranston, Riley	8	Wind Turbines: Measuring Sounds from Blades	NW10	Kellogg
158 E	Huang, Xiaohua	8	Chimney Height and Smoke Speed	NW06	Haines
158 E	Lin, Xinyan	8	Chimney Height and Smoke Speed	NW06	Haines
159 E	Rigsby, Kristen	8	Keeping Current	NW01	Taft
160 D	Tavas, Gabriel	8	Maglev for the Future	NW04	Hawthorne
161 E	McKeegan, Rilla	9	Pine & Steel Framing during Earthquakes	NW04	Lane HS
162 D	White, Samantha	9	Gone With the Wind	NW06	Carpenter
163 E	Yildiz, Askim	9	A Dome to Call Home	NW06	Carpenter
164 E	Ellazar, Jorell	10	Strength of Multidimensional Towers	NW01	Von Steuben HS
165 E	Galvan, Angelica	10	Dymaxion	NW01	Von Steuben HS
166 E	Garcia, Eros	10	A Step to a Zero-Waste Society	NW04	Lane HS
167 D	Harper, William	10	Coupling With Magnetic Fields	NW04	Lane HS
168 E	Peterson, Haydon	10	The Makeup of Earthquake Resistant Buildings	NW01	Von Steuben HS
169 E	Bibat, Christopher	11	Wind Turbines and Biomimicry	NW01	Von Steuben HS
170 E	Garnica, Clemencia	11	Ferrofluid Manipulation & Application	OS04	Juarez HS
171 D	Walsh, Claire-Wen	11	The Making of the Electric Bicycle	NW06	Young HS
172 E	Hruby, Raymond	12	Fog Capture: A Solution to Water Scarcity?	OS04	Juarez HS
173 E	Torres, Daisy	12	Lab on a Paper Device Using Surface Tension	OS04	Juarez HS
Environmental Science					
174 E	Butler, Alex	8	Let it Shine!	NW05	Sumner
175 E	Curtin, Colleen	8	The 3R's for Water on Grass Growth in Soil	NW10	Dore
176 E	Guendica, Milton	8	Are They Really Green?	NW03	Locke J
177 E	Hagan, Brandon	8	Going Green	NW09	Hendricks
178 E	Hennessy, Miette	8	A Growing Problem and a Natural Solution	NW06	Young W
179 E	Puczko, Daniel	8	Effect of Sugar on E.coli in an MFC	NW04	Lane
181 E	Villa, Veronica	8	Recycling Gas	NW08	Seward

* See page 29 for the Network Abbreviation Key

EXHIBIT JUDGING
FRIDAY



Exhibits by Category

Ex#	Student Name	Grade	Title	Network	School
182 E	Kitisoontornpong, Trin	9	The Efficiency of SODIS	NW06	Carpenter
183 E	Miller, Myelle	9	Which Water is Better for Drinking?	OS04	Julian HS
184 E	Soltys, Jakub	9	How Does Environment Affect Plant Growth?	NW10	Kennedy HS
185 E	Truty, Anna	9	Plants and Detergents	NW10	Kennedy HS
186 E	Valerio, Joselyn	9	The Power of Science	MILT	Phoenix Military HS
187 E	Bariso, Kienna	10	pHs and Heartbeats	NW03	Steinmetz HS
188 E	Hernandez, Josemanuel	10	CO ₂ In Car Exhaust and Its Effect on Air Temp	NW08	Curie HS
189 E	Jones, Nefertia	10	Dangerous Rain	OS04	Morgan Park HS
190 E	Chikkala, Venkat	11	Cleaning Up Oil Spills	NW01	Von Steuben HS
191 E	Conde, Emily	11	Cleaning Up Oil Spills	NW01	Von Steuben HS
192 E	Shamshuddin, Bushraa	11	The Effect of NaCl on Water Turbidity	NW04	Lane HS
193 E	Tejeda, Andres	11	Oil Be Gone!	NW10	Chicago Agri HS
194 E	Westley, London	11	Ferro Attraction	MILT	Air Force Military HS
195 E	Ahsan, Najah	12	Innovative Strategies to Optimize De-icing	NW01	Northside HS
196 E	Ahsan, Zahra	12	Delineation of Subsurface Flow to Protect GW	NW01	Northside HS
197 E	Arredondo, Lynda	12	Effectiveness of New Oil vs. Old Oil	NW02	Mather HS
198 E	Escutia, Blanca	12	Leaching Time	NW10	Chicago Agri HS
199 E	Guerrero, Jesus	12	Climate Change: Impact on Agricultural Yields	OS04	Hancock HS
200 E	Krainas, Samantha	12	Rising Temperatures and Atlantic Hurricanes	OS04	Hancock HS
201 E	Poole, Thomas	12	Alleviate Soil Compaction w/Cover Crops	NW10	Chicago Agri HS
202 E	Vaca, Edgar	12	Water Quality in the Chicago Area	OS04	Hancock HS
203 E	Villeda, Janette	12	Will New Mexico Get Any Drier?	OS04	Hancock HS
Health Science					
204 E	DeLuna, Samantha	7	The Wonders In Water	NW08	Sewar
205 E	Gonzalez, Luis	7	Type of Exercise and Heartrate	NW08	Sawyer
206 E	Gonzalez, Nicolas	7	Going, Going, Gone!	NW10	Dawes
207 E	Chavez, Marisol	8	Does Breakfast Affect Your Test Scores?	NW08	Hernandez
208 E	Cordell, Brandon	8	Can A Lava Lamp Explain Lipids?	NW12	Ruggles
209 E	Leblebajian, Hallie	8	Disadvantage Knee	NW04	Blaine
210 E	McDonald, Destiny	8	What Affects Blood Sugar The Most?	NW12	Earhart
211 E	Mendez, Antonio	8	Need Some Sugar?	NW08	Seward
212 E	Cazares, Lesley	9	Neutralizing Stomach Acid - Expensive	MILT	Phoenix Military HS
213 E	Park, Alec	9	Texting vs. Talking: Effects on Concentration	NW02	Mather HS
214 E	Xia, Sophia	9	The Effects of Nicotine on Cancer Cell Growth	NW06	Young HS
215 E	Lechuga, Jennifer	10	Music's Effect on Blood Pressure	NW12	South Shore Intl HS
216 E	Fajardo, David	11	How Sweet Is It? 2nd Edition	MILT	Phoenix Military HS
217 E	Jones, Damien	11	Off to the Races	NW03	Clark HS
218 E	Rosales, Uriel	12	Cardiovascular Exercise and Math Performance	OS04	Hancock HS

* See page 29 for the Network Abbreviation Key



Exhibits by Category

Ex#	Student Name	Grade	Title	Network	School
Materials Science					
219 E	Flax, Malik	7	Driving on Ice	NW05	Cather
220 E	Furigay, Juliana	7	Which Wood Resists Water Absorption the Best?	NW01	Hitch
220 E	Le, Tam	7	Which Wood Resists Water Absorption the Best?	NW01	Hitch
221 E	Rodriguez, David	7	Magnet Strength in Hot Temperature	NW10	Dore
222 E	Roussel, Megan	7	Which Fabric Will Keep You the Coolest?	NW12	Black
223 E	Doyle, Sara	8	Heat Variations in Woods	NW10	Dawes
224 E	Ketcham, Angelica	8	Your Gut Instinct With A Superior Interior	NW06	Young W
225 E	Salem, Amal	8	Diaper War	NW10	Stevenson
226 E	Alvarez, Lesly	9	Flame-Retardant vs. Safe Homes	MILT	Phoenix Military HS
227 E	Ortega, Sammy	9	Battle of the Builders	MILT	Phoenix Military HS
228 E	Adeagbo, Jubril	10	How Well Will it Fly?	NW12	South Shore Intl HS
229 E	Motwani, Neha	10	Graphene Super Capacitors	NW04	Lane HS
230 E	Wischnewsky, Samuel	10	Breaking Into Bioplastics	NW06	Young HS
231 E	Xue, Eric	10	The Effects of Temperature on Magnets	NW04	Lincoln Park HS
232 E	Coaks, Octavia	11	Unwrapping the Dead	NW11	Lindblom HS
233 E	Caballero, Jesus	12	Adhesive Bonds and Temperature	OS04	Hancock HS
Mathematics					
234 D	Ruan, Rachel	8	Star Polygons Angle Sum	NW06	Holden
235 D	Gallegos, Anton	9	Measuring Sugar Levels with a Laser Pointer	NW06	Carpenter
236 D	Kendrick, Lev	11	Young Graphs: 1089 Et. Al.	NW06	Payton HS
237 D	Phifer, Christopher	11	Unique Sums of Pythagorean Triples	NW06	Payton HS
238 E	Sharma, Vikrant	11	Soddy Circles and a Bunch of Generalizations	NW06	Payton HS
239 D	Shuaibi, Ahmed	11	The Math Behind the ENI Puzzle	NW06	Payton HS
240 D	Slade Byrd, Cormac	11	The Secretaries Orderings, A Generalization	NW06	Payton HS
241 D	Williamson, Peter	11	Batter Up? Probability of Balanced Averages	NW06	Payton HS
242 E	Young, Margaret	11	Let's Get Down to Business	NW06	Payton HS
243 D	Barclay, William	12	Automorphisms in R and in C	NW06	Payton HS
244 E	Brito, Tania	12	Angles on a Sphere	MILT	Phoenix Military HS
245 D	Fogelson, Aaron	12	Flood-It With Math	NW06	Payton HS
246 D	Ierugan, Delia	12	Mickey Mouse Ears - Sangaku = 41	NW06	Payton HS
247 E	Johnson, Gersham	12	Newton's Method and It's Rate of Convergence	NW06	Payton HS
248 D	Luczak, Rileigh	12	Investigation of Solutions to Pell's Equation	NW06	Payton HS
249 D	Mine, Alex	12	Combinations of Periodic Functions	NW06	Payton HS
Microbiology					
250 E	Branda, Benjamin	7	The Effect of Electromagnetic Fields on Algae	NW04	Franklin
251 E	McCabe, Sean	7	Super Bugs	NW10	Cassell
252 E	Altman, Megan	8	Yeast Reactions with Different Sugars	NW04	Lane
253 E	Edwards, Felecia	8	E-coli Bacteria vs. Dishwashing Liquid	NW09	Hendricks
254 E	Hoefling, Johanna	8	Does Antibiotic Resistance Build Superbugs?	NW10	Twain
254 E	Lukanus, Gabriela	8	Does Antibiotic Resistance Build Superbugs?	NW10	Twain

* See page 29 for the Network Abbreviation Key

EXHIBIT JUDGING
FRIDAY



Exhibits by Category

Ex#	Student Name	Grade	Title	Network	School
255 D	Lu, Mindren	8	Recatching the Sneeze	NW06	Young W
256 E	McCarthy, Ellavieve	8	Kill Bacteria: Best Way to Disinfect Water	NW10	Kellogg
257 E	Shean, Cassidy	8	Effects of Dandelions on Bacterial Growth	NW01	Edison Park
258 E	Moreno, Sheilly	9	Contaminated Water: Methods of Purification	NW08	Curie HS
259 E	Vidmar, Christy	9	Which Acne Medication Can Zap that Zit?	NW08	Curie HS
260 E	Bartley, Anthony	10	Proliferation vs. Differentiation	NW11	Lindblom HS
261 E	Bernardino, Marisol	10	Which Disinfectant Will Win the Fight?	NW03	Steinmetz HS
262 E	Hernandez, Magda	10	Disinfectants vs. Bacteria	NW03	Steinmetz HS
263 E	Jimenez, Ruby	10	Bacteria on the Loose	OS04	Juarez HS
264 E	Lurye, Samuel	10	Effect of Garlic on Different Bacteria	NW04	Lincoln Park HS
265 E	Gutierrez, Yadid	11	Extracting Remedies	NW08	Curie HS
266 E	Martinez, Connie	11	Do Marinades Affect Bacteria Growth?	OS04	Juarez HS
267 E	Nguyen, Tho	12	Bacterial Resistance	NW02	Amundsen HS
268 E	Pham, Hai	12	Exposure of UV Light on Bacterial Mortality	NW02	Amundsen HS
269 E	Walker, Marquise	12	Myoblast Encapsulation Novelty Gene Therapy	NW11	Lindblom HS

Physics

270 E	Eligator, Talia	7	Prism Density Effects on Angle of Refraction	NW04	Burley
271 E	Flisk, Michael	7	Measuring Vibrational Frequency Using Light	NW11	Lenart
272 E	Rogers, Mackenzie	7	Which Fabric is Most Fire Proof?	NW04	Alcott
273 E	Shadle, Audrey	7	Induction: Currents with Magnets and Coils	NW04	Bell
274 E	Shimandle, Ian	7	To Hit or Not to Hit	CHTR	Merit (Chicago Virtual)
275 E	Chambers, Courtney	8	Density and Pitch	NW05	Kellman
276 E	Chruszcz, Dominika	8	Experimenting With Friction	NW01	Dever
277 E	Edidin, Maxum	8	Salt Water Powered Car	NW06	Andersen
278 E	Fita, Emilia	8	Evaporation	NW06	Andersen
279 E	Gabriel, Daphney	8	How Does Heat Affect the Form of Candy Crystals?	NW12	Mann
280 E	Jones, Jakobi	8	The Better Battery	NW12	Warren
281 E	Nowell, Aaliyah	8	Height and Linearity of Bouncing Balls	NW11	Libby
282 E	Scalise, Vincenzo	8	The Sun Favors....	NW06	Sheridan
283 E	Spolarich, Hallie	8	Is Cu the Best Conductor of Electricity?	NW10	Kellogg
284 E	Stanislawski, Kirsten	8	Footprints in the Sand	NW11	Lindblom
285 E	Van Buren, Kellee	8	Going Batty	NW06	Galileo
286 E	White, James	8	Altering Resonance Frequency	NW06	Ogden International
287 E	Adeyinka, Jemima	9	The Effect of Paint on Violin Sounds	NW12	South Shore Intl HS
288 E	Anaclet, Bukuru	9	Refraction	NW01	Von Steuben HS
289 E	Bhatt, Bhavain	9	Dim That Light	NW01	Taft HS
290 E	Cabrera, Brandon	9	Now You See It, Now You Don't	MILT	Phoenix Military HS
291 E	Coleman, Ashley	9	Electromagnetic Power	MILT	Phoenix Military HS
292 E	DeMastri, John	9	Temperature and Electromagnetic Fields	NW04	Lincoln Park HS
293 E	Duenas, Edgar	9	Coin Combination and Voltage	CHTR	Catalyst -Maria HS
294 E	Soto, Yareli	9	Where Do You End Up?	MILT	Phoenix Military HS
295 E	Wells, Arthur	9	The Most Accurate Throw	OS04	Julian HS



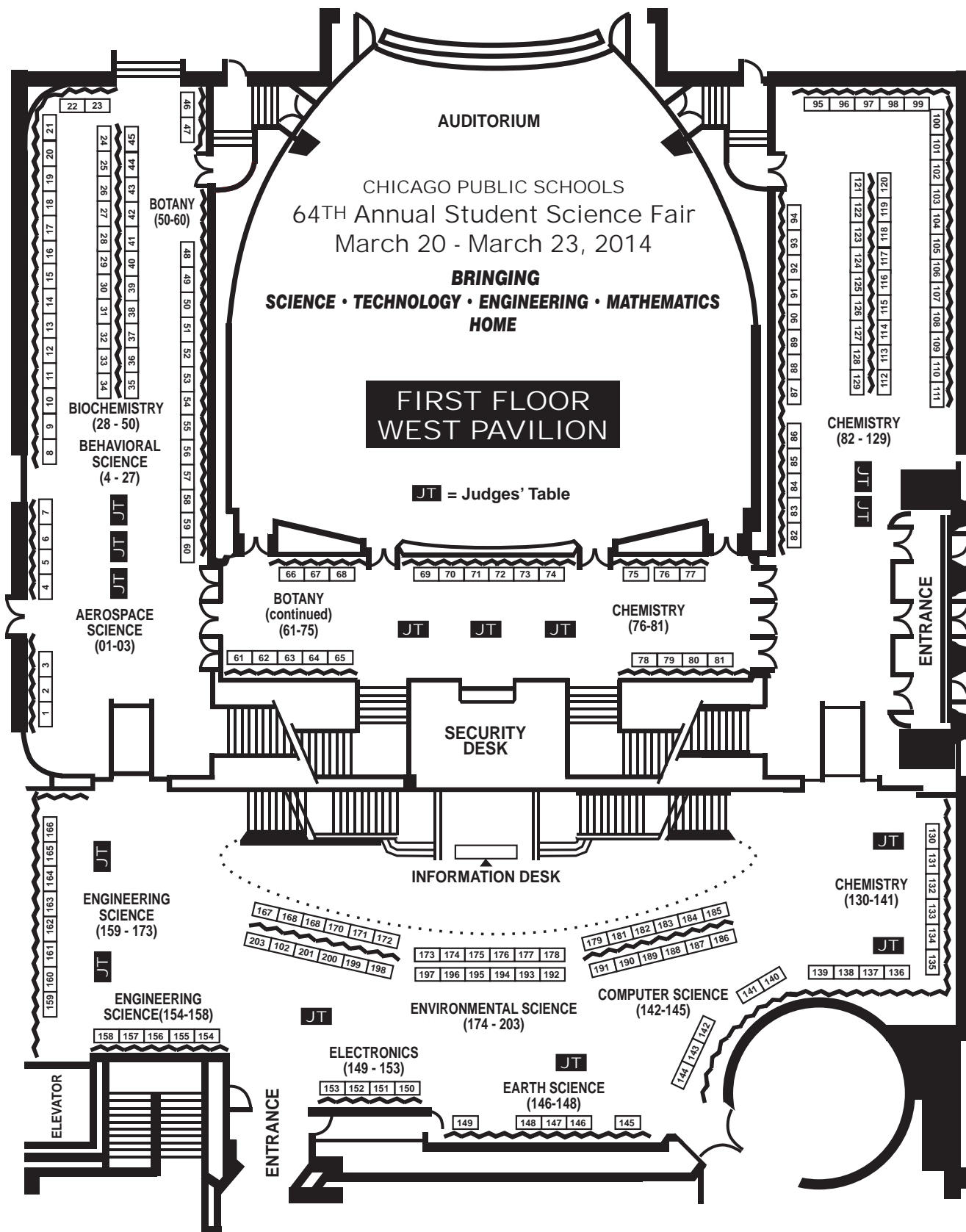
Exhibits by Category

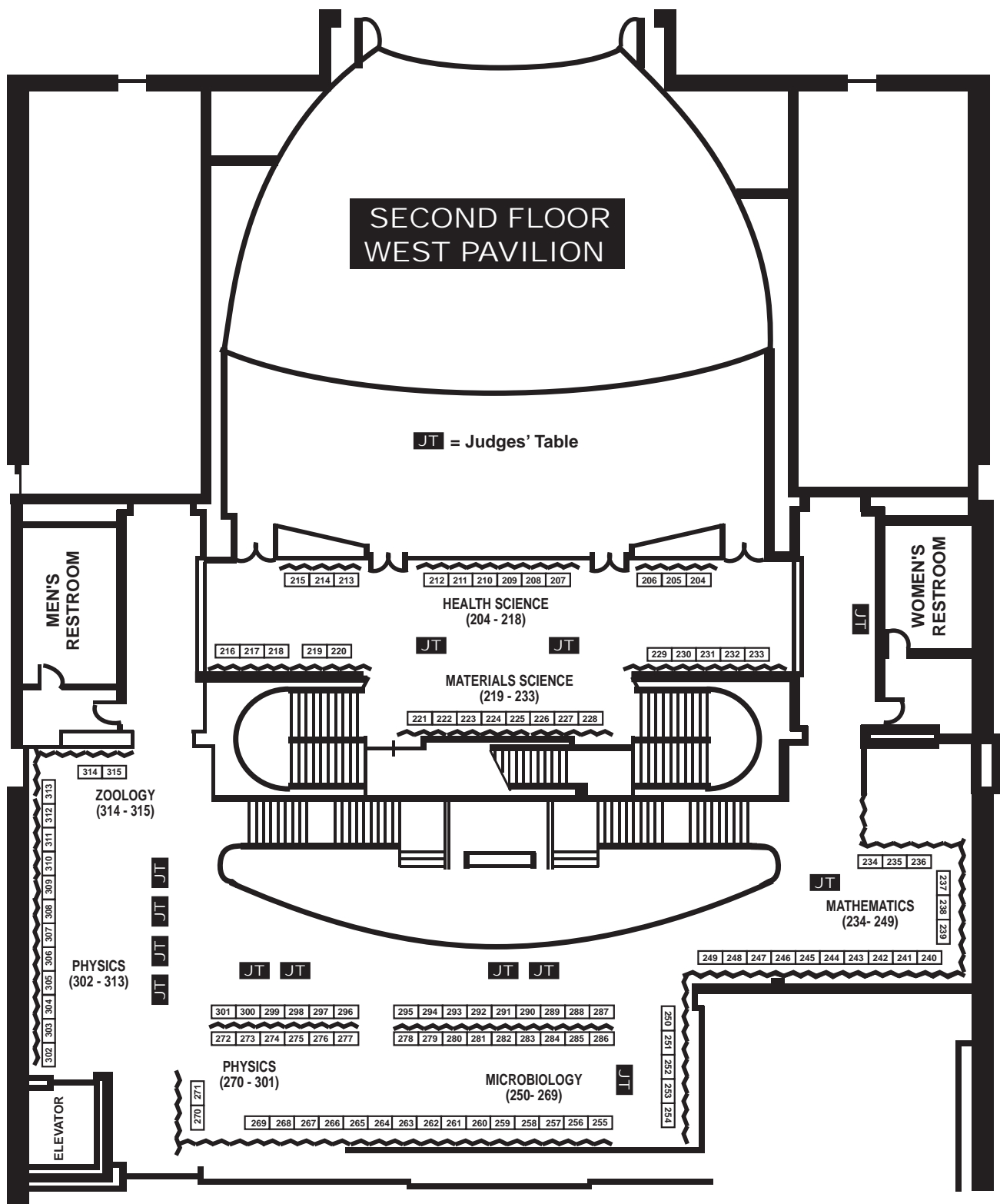
Ex#	Student Name	Grade	Title	Network	School
296 E	Amella, Lauren	10	Stressed Out	NW06	Young HS
297 E	Berger, Kimberly	10	Measuring Knee Stress	NW01	Taft HS
298 E	Chatman, Alonzo	10	Does Air Pressure Affect Basketball Bounce?	OS04	Morgan Park HS
299 D	Rhodes, Tafari	10	London Bridge is Falling Down	NW02	Lake View HS
300 E	Serna, Maria	10	The Effect of Force and Velocity on Spatters	CHTR	Catalyst -Maria HS
301 E	Akosa, Denzel	11	The Speed of Light	CHTR	Henry Ford
302 E	Audina, Jessica	11	That hAM Sound Transmitter	MILT	Air Force Military HS
303 E	Hensey, Bennett	11	Velocity's Effect on Rotational Motion	NW09	Kenwood HS
304 E	Middleton, Brady	11	The Seebeck Effect	NW10	Chicago Agri HS
305 E	Pei, Alexander	11	The Effect of Temperature on PV Arrays	NW06	Young HS
306 E	Sandoval, Joseph	11	Examination of Light Bulbs	NW01	Taft HS
307 E	Sillman, Amanda	11	Can Different Insulation Melt Ice Faster?	MILT	Air Force Military HS
308 E	Varela, Lucero	11	Sweet Light	NW02	Lake View HS
309 E	Catalan, Kristian	12	Electrical Heat: Heat of a Resistor	CHTR	Henry Ford
310 E	Nash, Geoffrey	12	Optimizing Thermal Energy Storage	NW04	Lincoln Park HS
311 E	Serrano, Jovani	12	The Speed of the Muon	NW13	Brooks HS
312 E	Solis, Victor	12	UVA, UVB and Heat Produced by Light Bulbs	NW07	Social Justice HS
313 E	Sy, Alyssa	12	Lookin' For the Sugar	NW01	Taft HS

Zoology

314 E	Augusthy, Sebastian	11	Effect of Copper Sulfate on Snails	NW09	Kenwood HS
315 E	Garcia, Selina	12	Conditioning Pill Bugs with a T-maze	MILT	Phoenix Military HS

Category	Elementary			Secondary			Total			Team Projects
	Male	Female	Total	Male	Female	Total	Male	Female	Total	
Aerospace Science	0	0	0	2	1	3	2	1	3	0
Behavioral Science	2	8	10	10	6	16	12	14	26	2
Biochemistry	4	2	6	7	10	17	11	12	23	0
Botany	0	9	9	5	11	16	5	20	25	0
Chemistry	13	35	48	8	14	22	21	49	70	4
Computer Science	0	0	0	2	2	4	2	2	4	0
Earth Science	0	1	1	0	2	2	0	3	3	0
Electronics	1	1	2	2	1	3	3	2	5	0
Engineering Science	3	5	8	6	7	13	9	12	21	1
Environmental Science	4	3	7	8	14	22	12	17	29	0
Essay Competition	0	0	0	0	0	0	0	0	0	0
Health Science	4	4	8	4	3	7	8	7	15	0
Materials Science	2	6	8	5	3	8	7	9	16	1
Mathematics	0	1	1	11	4	15	11	5	16	0
Microbiology	4	5	9	4	8	12	8	13	21	1
Physics	6	11	17	15	12	27	21	23	44	0
Zoology	0	0	0	1	1	2	1	1	2	0
TOTAL ►	43	91	134	90	99	189	133	190	323	9







Student Exhibitors

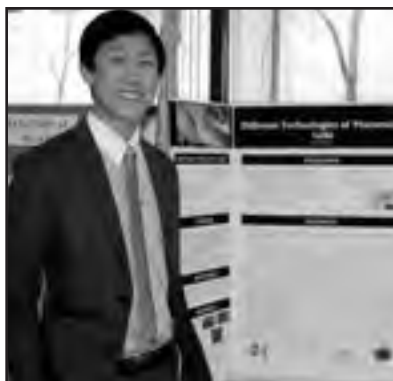
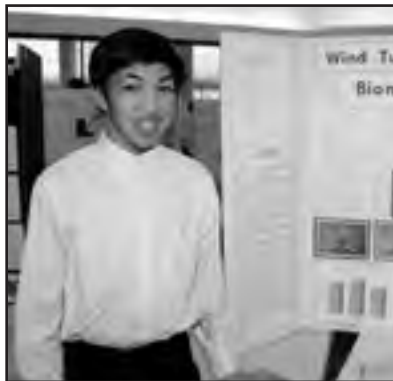


EXHIBIT JUDGING
FRIDAY



Student Exhibitors



EXHIBIT JUDGING
FRIDAY



Student Exhibitors

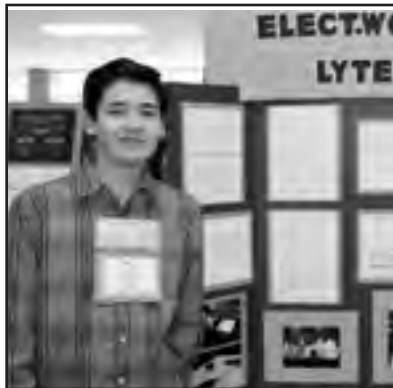
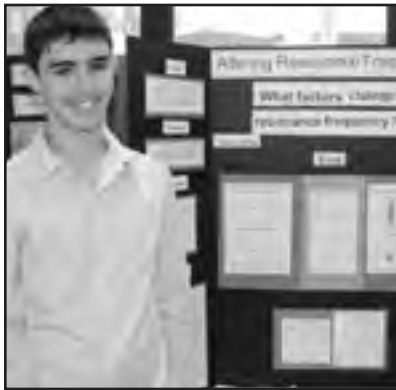


EXHIBIT JUDGING
FRIDAY



Sixth-Grade Regional Winners Recognition Luncheon

Saturday, March 22, 2014

11:45 A.M. – Columbian Room

Welcome

Luba Johnson

Chairperson

CPS Student Science Fair, Inc.

Comments

Dawn P. Neely

*Manager-Field Operations,
Construction South*

Peoples Gas

Glennie King

Chairperson Elect

CPS Student Science Fair, Inc.

Presentation of Awards

Luba Johnson

Dawn P. Neely

Glennie King

Group Photo

Allan Reisberg

Chairperson, Digital Imaging

CPS Student Science Fair, Inc.



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



Sixth-Grade Regional Winners

List of 2013–2014 Sixth-Grade Regional Winners

Name	School	Project Title	Network
Adelien, Michael	Washington, H.	Antacid Potency	NW12
Alexander, Lauren	Dunne	How Does Wind Speed Affect How a Candle Burns?	NW13
Avina, Gabriel	Washington, G.	A Battery That Makes Cents	NW13
Burciaga, Ariel	Edwards	Does Water Temperature Affect Plant Growth?	NW08
Carlson, Julia	Decatur	Supercooled Water Makes Freezing a Snap!	NW02
Cervantes, Tanya	Peck	Righty or Lefty?	NW08
Crenshaw, Matthew	Foster Park	Do Gummy Bears Expand in Vinegar or Water?	NW11
Greenidge, Alisha	Crown	The pH Levels in Various Types of Soda Pop	OS04
Gutierrez, Marcelo	Ray	Turbulent Aerodynamics	NW09
Latimer, Lior	Nettelhorst	Does Time Zones Affect Baseball Players?	NW04
Liu, YiYang	Haines	Radiating UVA	NW06
Puczko, Michael	Thorp, O.A.	The Impact of pH - Electricity	NW01
Rogers, Raven	Pirie	Shady Squares	NW12
Ross, Endia	Kellman	Shaking for Suds	NW05
Ryan, Maxwell	Farnsworth	Go With the Flow	NW01
Soberano, Joden	Ray	Understanding the Principles of Evaporation	NW09
Wodnicki, Alyssa	Edgebrook	SPF Levels...Do They Matter?	NW01



PUBLIC VIEWING & 6TH GRADE
LUNCH SATURDAY



Awards Convocation

Sunday, March 23, 2014

1:00 P.M. – Auditorium

Pledge of Allegiance

National Anthem

Greetings..... **Luba Johnson**
*Chairperson,
CPS Student Science Fair, Inc.*

Welcome..... **Nicole Kowrach**
*Director of Teaching and Learning
Museum of Science and Industry*

Remarks..... **Debra Sutkowski**
*President-Elect,
CPS Student Science Fair, Inc.
Board of Directors*

Sylvia Nelson Jordan
Manager, CPS Academic Competitions

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

- Special Awards
- Military Awards
- Special Tour Awards

Winners Recognized by **Nicole Kowrach**
Sylvia Nelson Jordan
Debra Sutkowski
Luba Jonson

Recognition of
Symposium Winners **Nina Hike-Teague**
Chairperson, Symposium Committee

Illinois Junior Academy
of Science (IJAS) Awards ... **Karen Edmondson**
Chairperson, IJAS Committee

International Science
and Engineering Fair
(ISEF) Awards..... **Luba Johnson**
*Chairperson,
CPS Student Science Fair, Inc.*

Closing Remarks..... **Luba Johnson**
*Chairperson,
CPS Student Science Fair, Inc.*





Special Awards

A variety of incentives are provided by individuals, industry, educational organizations and professional societies. The contributors listed below and 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 23, 2014, 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

One \$50.00 cash award to a first time High School City Science Fair exhibitors

- Rita Nelson
- RyAnn Nelson -Jaiyesimi

Adler Planetarium

Two family passes to Adler Planetarium to exhibitors showing promise in space science and two certificates of participation in Astro-Science workshop for outstanding high school exhibitor

- Heidi Schmitt

Alpha Kappa Alpha Sorority, Inc.

Two \$50 gift cards for outstanding presentations by exhibitors

- Phi Kappa Omega Chapter

American Chemical Society

Two \$100 cash awards to exemplary projects in chemistry

- Carmen Marquez

American Electroplaters and Surface Finishers Science Honors Award

An invitation to ASEF May Dinner where one \$1000, one \$500 and one \$250 cash award will be awarded

- ASEF Chicago Branch-Andrew Gruda

A.S.M Materials Education Foundation

A certificate and medallion to an outstanding materials engineering project

- Pergentina L. Deatherage

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 Psychological Association

One certificate to an outstanding psychology exhibitor in Behavioral Science

- Society for Science and the Public

Association for Women Geoscientists

One certificate to an exemplary female exhibitor in geosciences

- Society for Science and the Public

Bartley Family Award

Two \$50 gift cards to an outstanding exhibitor

- Jeanette Bartley

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

CH2MHILL Outstanding Achievement Award

Five \$50 cash awards to outstanding minority exhibitors

- Clayton Hill
- Melvin Slater

Charles Braxton Brown Jr. Award of Excellence

One \$50 cash award to any student exhibiting excellence with electricity.

- Vincent C. Brown

Charles Braxton Brown Jr. Award of Ingenuity

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

- Vincent C. Brown

Chicago Academy of Sciences and its Peggy Notebaert Nature Museum

One year Family Membership to the Peggy Notebaert Nature Museum and a \$50 Visa gift card awarded for excellence in environmental science

- David Bild



Special Awards

Chicago Intellectual Property Alliance (CIPA)

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

- Mike Harlin, Esq.
- Sarah Biggs

Chicago Principals and Administrators Association

Five \$100 Target Gift cards to high school exhibitors and five \$100 Target Gift cards to elementary exhibitors in Behavioral Science, Biochemistry, Chemistry, Environmental Science, Mathematics, or Microbiology

- Kent Lau
- Walter Pilditch

Christine M. Krupa Award

One \$100 cash award to an outstanding project in mathematics

- Christine Krupa

College of American Pathologists

Six outstanding exhibitors in the categories of microbiology, biochemistry, health sciences and zoology will be awarded a \$250 gift card at the annual meeting in Chicago

- Nora Bowers

Department of Science

A 2014 souvenir lanyard to each student exhibitor

- CPS Department of Science

Dr. Janice M. Buckley Perseverance Award

One \$50 gift card to a proficient middle school exhibitor

- Linda Carter

FBC Memorial Foundation for Assisted Living

One \$50 cash award to a proficient middle school exhibitor

- Linda Carter

Gerald Rudnick Technology Award

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

- Gerald Rudnick

Gonzalez, Wahlberg, James Scientific Method Award

Six \$50 cash awards to exhibitors that best represent an experiment with the scientific method

- Eddie Marie Gonzalez

Granular Materials Award

One \$100 cash award to an exhibitor using granular materials.

- Paul Dolan, Jr.

IJAS State Exposition

Accommodations for 75 exhibitors and symposium presenters to attend the IJAS state exposition

- Karen Edmondson

IJAS Essay Finalists

Elementary Division - One \$250, one \$125, one \$75 and one \$50 cash award to elementary writers; High School Division - one \$250, one \$125, one \$75 and one \$50 cash award to high school writers; and \$25 to all other participants

- Nina Hike-Teague

Illinois Speech-Language-Hearing Association

Two \$100 cash awards to projects related to communication disorders science

- Denise Prohaska

Intel Excellence in Computer Science

Special qualifying application for the top computer science high school exhibitor

- Society for Science and the Public

ISEF

Trip for four delegates to International Science and Engineering Fair and recognition to two alternates

- Pamela Moy
- Aubrey Chang

Janice Lemar Brown Women In Mathematics Award

One \$50 cash award to an outstanding African-American mathematics exhibitor

- Vincent C. Brown

Local 143 International Union of Operating Engineers

Ten \$100 cash awards to outstanding exhibitors

- Robert Hellberg

LoEva Reid Award

Two \$50 cash awards to outstanding middle school students

- Fred Williams
- Leon Williams



Special Awards

Luba Johnson Chairpersons Award

2014 souvenir wristband to each exhibitor, symposium and essay participant and 6th grade recognition attendee

- Luba Johnson

Luba Johnson Science/Math Award

Two \$50 cash awards to outstanding exhibitors

- Luba Johnson

Luis Alvarez Capilla Award

Three \$50 cash awards to outstanding Dore student exhibitors

- Dr. Elizabeth Alvarez

Lula Mae Puritt Award

Two \$50 cash awards to outstanding middle school students

- Fred Williams
- Leon Williams

Marie Sklodowska Curie Award

Four \$25 Gift Cards to outstanding projects in physics and chemistry

- Barbara Dubielak-Wood

McGraw Hill School Education Group

Four \$50 cash awards to outstanding exhibitors demonstrating Common Core skills

- 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

Mu Alpha Theta

One certificate to a high school exhibitor creatively using modern mathematics

- Kay Weiss

Museum of Science and Industry

A MSI family membership to exhibitors chosen to IJAS

- Julie Boyk

National Oceanic & Atmospheric Administration

One certificate and medallion to an exhibitor in earth conservation

- 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

Five \$50 cash awards to outstanding exhibitors

- Melvin Slater
- Ron Wright
- Melvin Hargrett
- Andre Garner
- Clayton Harris
- Jerrold DeRon

Optical Society of Chicago

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

- George Magerl

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 behavioral science, botany, environmental science, materials science and zoology and twenty award certificates for outstanding effort.

- Dr. Deborah Lynn Hawes

Science Enterprise Award

Four \$50 cash award to exhibitors showing initiative and determination

- Gary Morrissey

Science Merit Award

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

- Rita Nelson
- RyAnn Nelson -Jaiyesimi

Shirley Davis-Morrissey Memorial Teacher Award

One \$300 cash award to a middle school teacher sponsor who has successfully demonstrated outstanding leadership and educational mentorship to students exhibiting at CPS Student Science Fair

- Gary Morrissey

Slater Association

One \$50 cash award to an outstanding exhibitor

- Melvin Slater
- Cynthia Slater



Special Awards

Society for In Vitro Biology

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

- *Society for Science and the Public*

State Farm Insurance Company Award

One \$50 cash award to an exemplary exhibitor

- *Cynthia Slater*
- *Melvin Slater*

SPIE-- The Intl Society for Optical Engineering

One \$200, one \$125 and one \$75 cash award with award letters to outstanding exhibitors

- *George Magerl*

Stockholm Junior Water Prize

Three 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*

Surgeon General's Special Science Award

One award certificate to an exhibitor with outstanding research in the field of health promotion, disease prevention and health science

- *U.S. Department of Health & Human Services*

Susan Engel Award of Excellence

One \$75 cash award to a high school exhibitor in Health or Medical Sciences

- *Dr. Susan Engel*

Symposium Award

One first place cash award of \$250, one second place cash award of \$125, one third place cash award of \$75, one fourth place cash award of \$50 and thirty participation cash awards of \$25 to Symposium presenters

- *Nina Hike-Teague*

The American Association of Zookeepers, Lincoln Park Chapter

One \$50 cash award to an exemplary exhibitor

- *Susan Moy*

The Field Museum

A one year family membership to an outstanding exhibitor

- *Anne Marie Fayen*
- *Education Department of the Field Museum*

The National Sorority of Phi Delta Kappa, Inc.

Two \$50 cash awards to exemplary exhibitors

- *Shannette Rooks*

Tyron K. Smith Award

One \$100 award to an outstanding student in electronics

- *Teach Our Children, Inc.*

United States Air Force

Four Certificates, Victory Sport Bag, Sonic Sound Speaker, and Junior Tech Organizer to outstanding Science or Engineering project

- *Society for Science and the Public*

US Metric Association

One certificate to a high school exhibitor that involves quantitative measures which best uses the SI metric system

- *Society for Science and the Public*

United States Navy

One certificate of achievement to exemplary exhibitors

- *Society for Science and the Public*

UOP, A Honeywell Company

Eight cash awards: One Gold award of \$150; two Silver award of \$100; and five Bronze awards of \$50 each to be awarded in the areas of chemistry, physics and environmental sciences

- *Wendy Jackson*

World Book Encyclopedia Inc.

A copy of World Book Science Year 2014 to all exhibitors

- *Mark Willy*
- *Zofia Kulik*

Yale Science & Engineering Association

One certificate to an outstanding 11th grade exhibitor in Computer Science, Engineering, Physics, or Chemistry

- *Society for Science and the Public*

Young Scientist Award

One \$50 cash award to a High School student for his/her research endeavors in biochemistry, health science, microbiology or zoology

- *Rita Nelson*
- *RyAnn Nelson -Jaiyesimi*



Special Awards

AWARDS SUNDAY





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 \$101–\$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), Harold Washington College and Wright College 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, Harold Washington College and Wright College 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. More details will follow in a mailing to teachers at the beginning of the next school year. Please contact Paul Dolan, Professor of Physics, Northeastern Illinois University at: P-Dolan@neiu.edu or 773-442-5785.

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 15 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 2,005 scholarships valued at \$3,032,402 to students from 73 Chicago public high schools.



2013 Scholarship Winners

Any prospective June CPS high school graduate who has participated in CPS science fairs (during grades 7-12) at an area or the city level and/or the symposium/essay competition; and who is planning to major in science, mathematics, engineering, or computer science 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 2013 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 2,005 scholarships, valued at \$3,032,402 to students from 73 Chicago public high schools.



Olufolabi Agunloye/Lane
University of Illinois at Chicago
Computer Engineering
BP America, Inc./\$3,000



Kelley Dugan/Lane Tech
Ohio State University
Mechanical Engineering
Allen Nelson Scholarship/\$1,000 +
Alumni Association &
Student Science Fair, Inc./\$1,000



Kathya Chavez/Curie
Lindenwood University
Nursing
Geri Blakley Scholarship/\$1,500



Ana Gamon Estevane/Lake View
University of Illinois at Chicago
Biology
Barbara Bulmash
Scholarship/\$1,500



Maritza Chavez/Phoenix MA
University of Illinois-Champaign
Environmental Science
Ray Readus Scholarship/\$1,000



Alexander Gasca/Payton CP
Tufts University
Engineering
Motorola Foundation/\$3,000
& Tom Maloney Scholarship/\$1,000



Samuilo Cvetkovic/Lane Tech
University of Illinois-Champaign
Chemistry
Allen Nelson Scholarship/\$2,000



Emily Hayes/Payton CP
University of Rochester
Biological Sciences
Takeda Global Research &
Development Center, Inc./\$4,000



2013 Scholarship Winners



Kathrin Kajderowicz/Lane Tech
Cornell University
Biological Technology
Takeda Global Research &
Development Center Inc./\$10,000



Roger Mei/Lincoln Park
Northwestern University
Electrical Engineering
Blum-Kovler Scholarship/\$1,000
& Society of Retired Principals &
Superintendents & Walter Pilditch/
\$1,000



Deena Kishawi/Young
DePaul University
Biological Sciences
DePaul University Tuition Waiver,
4-Yr Renewable/\$8,000 Yr



Giovanni Mora/Amundsen
Wright College
Physics/Engineering
Donald & Helen Edwards
Scholarship/\$1,500



Ngan Le/Amundsen
Lawrence University
Biochemistry/Pharmacy
Takeda Global Research &
Development Center, Inc./\$3,000



Michael Nguyen/Air Force
Academy
Illinois Institute of Technology
Computer Engineering
ComEd, An Exelon Co./\$3,000



Katie Liang/Lincoln Park
University of Illinois-Champaign
Biochemistry
Takeda Global Research &
Development Center, Inc./\$2,000



Deanna Pirpiris/Taft
Loyola University
Physics/Engineering
Loyola University Tuition
Waiver, 4-Yr Renewable - \$2,000
Yr & Dolores Rosenbaum
Scholarship/\$2,000



Charles Lyang/Young
Boston University
Bio-Medical Engineering
Takeda Global Research &
Development Center, Inc./\$4,000



Patrice Pirpiris/Taft
Loyola University
Physics/Engineering
Loyola University Tuition
Waiver, 4-Yr Renewable - \$2,000
Yr & Dolores Rosenbaum
Scholarship/\$2,000



Oscar Plata/Amundsen
University of Illinois-Champaign
Physics/Astronomy
Harold Keihm Scholarship/\$1,500



Alex Villarreal/CHAS
University of Wisconsin-
Madison
Agriculture/Microbiology
Takeda Global Research
& Development Center,
Inc./\$4,000



Brittnei Pratt/Lindblom
University of Illinois at Chicago
Anthropology
CPS Combined Charities/\$1,000

2013 Senior Recognition Awards/ \$500 Cash Award



Alyx Scott/King CP
TAMU-Commerce
Zoology
Ira Sax Scholarship/\$1,000



Ali Ansari
Amundsen



Mona Lisa McCants
Williams Prep



Ryan Speese/Northside CP
Washington University at St. Louis
Biological Sciences
Marlene Sutkowski
Scholarship/\$1,000



Daniel Asplin
Payton CP



Rocio Mendez-Rozo
Payton CP



Keven Stonewall/CHAS
University of Wisconsin-Madison
Microbiology
Takeda Global Research &
Development Center, Inc./\$3,000



Kaitlin Hoinacki
CHAS



Maryam Saeed
Amundsen



Miguel Torres/Juarez
University of Iowa
Engineering
Kenneth Zdunek & Mary
Memhardt & Student Science
Fair, Inc./\$1,000

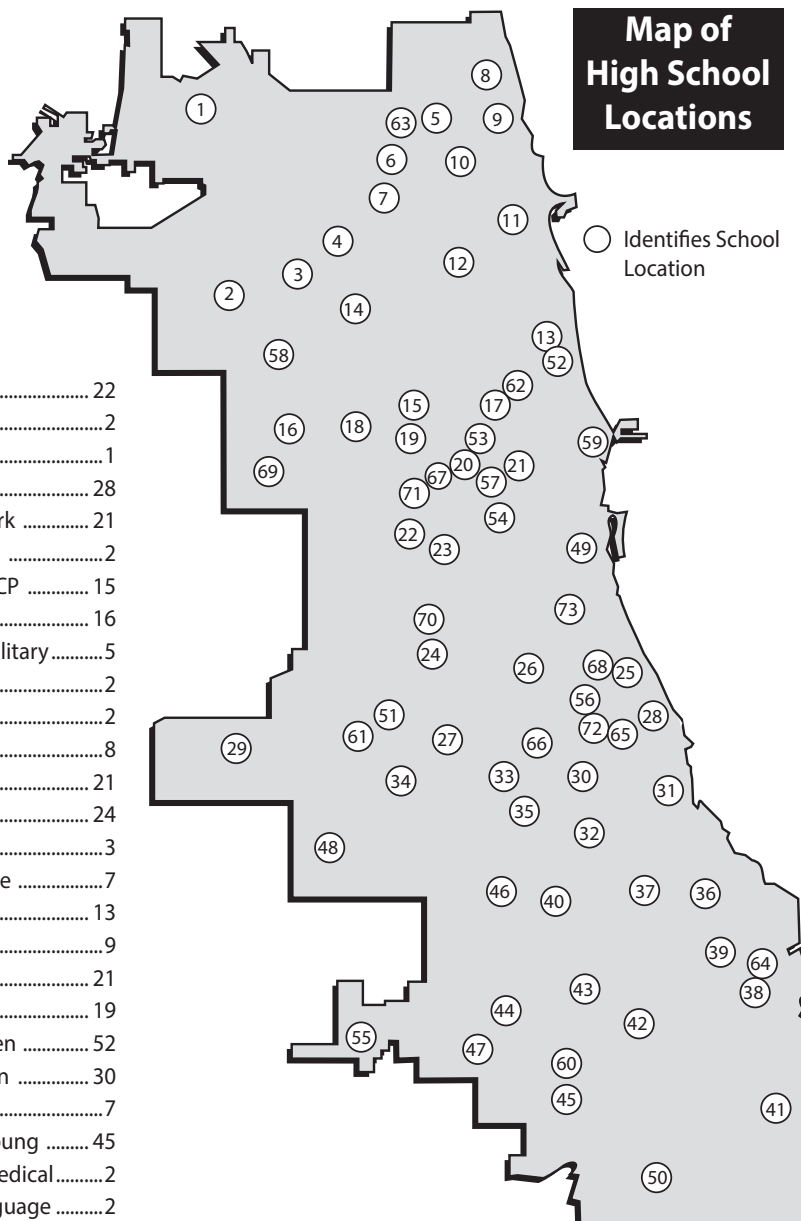


Number of Scholarships Awarded (1956 – 2013)

Map no. School..Scholarships

73	Air Force Academy.....	1
10	Amundsen	32
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.....	44
39	Chicago Voc.	7
15	Clemente	1
42	Corliss	11
20	Crane	1
53	Cregier	2
51	Curie	15
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	2
34	Hubbard	16
31	Hyde Park	16
59	Jones	4
54	Juarez	4
44	Julian	5
24	Kelly	11
14	Kelvyn Park	13
29	Kennedy	14
28	Kenwood	16
25	King CP	7
11	Lake View	13
12	Lane	114
13	Lincoln Park	120

33	Lindblom	22
19	Marshall	2
71	Manley	1
05	Mather	28
47	Morgan Park	21
52	Near North	2
63	Northside CP	15
62	Payton	16
67	Phoenix Military.....	5
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	52
41	Washington	30
17	Wells	7
21	Whitney Young	45
72	Williams Medical.....	2
70	World Language	2





ComEd High School Science Club Program 2013-2014

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 (or shared among two or more club co-sponsors) and funds for instructional supplies. 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

Carver Military

Jamiu Sokoya

Curie

Erin Faulkner

Lora Roberts

Foreman

Vanessa Summer

Luckachan Varkey

Hancock

Erin Neidt

Jennifer Sities

Harper

Kara Weisenburger

Julian

Monique Murray

Keylvyn Park

Thomas Unger

Larry Perez

Lake View

Vijayanti Joshi

Lane Tech

Alison Hildebrandt

Marie Benas

Lindblom

Lauren Levites

Morgan Park

Aviva Theen

Payton

Walter Kinderman

Donna Figenshu

Phoenix

Beatrice Jaji

Sandra Tobias

South Shore

International College Prep

Felix Egharevba

Charles Larsen

Young, W

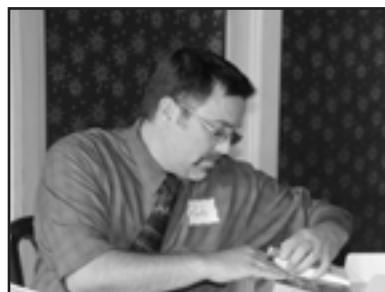
Anne Marie Sherry





Peoples Gas Middle School Science Club Program 2013-2014

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

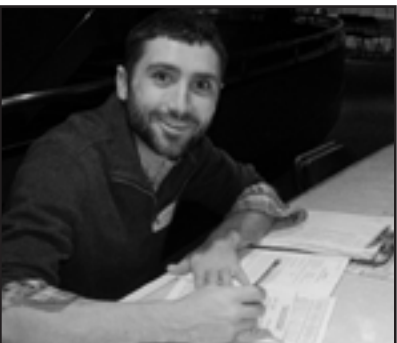
Burnside*Shawana Ridley***Carl Von Linne***Robert Troher***Carson***Christina Pawelec***Coles***Mariama Cosey***G. R. Clark***Heather Van Lear***Dore***Samuel Pearson***Edwards***Matthew Moline***Fulton***Kimberly Walls***Hanson Park***Arlene Garcia***Hernandez Middle School***Rosario Canizales***Leland***Fatima Hilario***Keller Elem Gifted Magnet***Leslie Swain-Stone***Murray***Arleta Ingram***Seward***Lorel Madden***Waters***Margaret Ballasch***Peoples Gas Engineers***Fabian Beltran**Laura Budzinski**Scott Davis**Ammar Faiz**Michael Fisher**Eric Frank**Scott Leduc**Vincent Mazzcaferro**Harsh Mehta**Richard Mlinarcik**Tanya Patino**Tom Puljic**Brian Rafferty**Shrikant Shah**Michael Weyenberg**Scott Zaroni***Wilson Mantilla***Manager, Fields Operations***Mary H. Houpt***Manager, Community
Partnerships*

2013-14 Teacher Sponsors of Peoples Gas Middle School Science Clubs



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 64th Annual CPS Student Science Fair.

Thank you and congratulations for a job well done!

Janice Ableman

Illinois Department of Children and Family Services

Paula Adams A T & T

James Aderhold Gas Technology Institute

Stacy Adlman

BP America Inc.

Baris Agar

Baxter Healthcare Corporation

Chaitanya Aggarwal

University of Illinois at Chicago

Annie Beryl Akuamoah

Peoples Gas

Sameera Ali

American College of Surgeons

Syed W. Ali

ComEd/Exelon

Larry Alofs

Robert Altenbach

ABBVIE

Nejib Amnar

Zenith/LG Electronics

Matthew Lee Amyx

Museum of Science and Industry

Michael Ander

URS Corporation

Mash Angolkar

Navistar

Emmanuel Ansong

University of Illinois at Chicago

Aleksandar Antanasijevic

University of Illinois at Chicago

Tony (Joseph) Arnold

Sargent & Lundy LLC

Roberto Arroyo

Peoples Gas

Joshua Aumick

Peoples Gas

Gernell Austin

Austin Management Gro

Peter Austin, DDS

Oak View Dental Group

Virgil R. Baird

Shawn Bairstow

Baxter Healthcare Corporation

John Baker

Ameritech Services

Christine Baldwin

Liz Baudler

Museum of Science and Industry

Sarah Baumgarten

Chicago Biomedical Consortium

Donald Baumgartner

USEPA

Howard W Beatty

BP America Inc.

Russell Becker

University of Chicago

James Belcastro

Pepsico

Vernon Bell

University of Chicago

Fabian Beltran

Peoples Gas

David Benjaih

Northeastern Illinois University

Thomas G. Benjamin

Argonne National Laboratory

Randall P Biang

BP America Inc.

Paul D Bierbauer

DeVry University

David Bild

Chicago Academy of Sciences

Pat Billing-Medel

Abbott Laboratories

Alexis Billingslea

Illinois Department of Transportation

Carlton Blunt Schneider

Irene Bogdan

Richard Bogdan

TRIPL

Leticia Bombino

Peoples Gas

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The following individuals, in addition to the Symposium Committee, generously volunteered their time and expertise on Saturday, January 25, 2014 to read research and essay papers submitted for evaluation. *Thank you, Symposium Readers!*

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The following scientists and engineers volunteered their time and expertise on Thursday, March 20, 2014 to act on a panel of judges to select the finalists who will participate in the Illinois Junior Academy of Science Symposium.

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- 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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