



Baltimore's **STEM Pipeline**

2013 ANNUAL REPORT



our mission

The Ingenuity Project teaches a rigorous curriculum to the brightest Baltimore City students in science, technology, engineering, and mathematics.

Opportunities for individual research at world-class institutions complement in-depth instruction in the classroom to build a pipeline for students to compete and become leaders in STEM professions.

Dear Friends:

In the 2012-2013 academic year, The Ingenuity Project Board of Directors formed a Strategic Task Force to create a five-year plan for the future. We invited all of our stakeholders—Baltimore City Public Schools central staff and principals, supporting foundations, students and teachers (past and present), donors, research mentors, and members of a community focus group—to contribute. We are grateful to everyone who supported the effort.

The final plan established ambitious goals. Among them is a comprehensive high school and middle school curriculum review. Student recruitment will expand outreach to predominantly Latino and African-American communities. In the high school

program, Ingenuity will increase the number of opportunities for student participation in independent STEM-related research through Ingenuity's Research Practicum. It will also bring a new focus to ensuring the best student matches for college admission, particularly to selective colleges.

Once again, we thank everyone for their support of The Ingenuity Project during this academic year. The Baltimore City Public School System and longtime foundation support from The Abell Foundation, Lockhart Vaughan Foundation, and T. Rowe Price Foundation have all been indispensable to Ingenuity's success. We offer our gratitude to the parents and community members who pushed us past our goals with their individual gifts.

To everyone who helped make this year so rewarding, and in particular, to Ingenuity's staff led by Dolores Costello, executive director; Sergei Zverev, Ph.D., associate director; and Gale Fletcher, M.A., dean of students; thank you! They manage all aspects of Ingenuity's academic program, operations, and planning with extraordinary excellence. The Board of Directors is very grateful for their dedication, for that of Ingenuity's teachers, and for our hardworking students.

Very truly yours,

Gary R. Pasternack, M.D., Ph.D.
President

In 2013, The Ingenuity Project celebrated the 20th anniversary

of its landmark program for Baltimore City's highest academic achievers proving that public education can be a powerful place to learn. Formed as an adjunct to the Baltimore City Public Schools in 1993, The Ingenuity Project has established its reputation as the best STEM education curriculum in the State of Maryland. It is an indispensable pipeline for Baltimore City public high school students to excel at a national level.

Expert instructors teach rigorous science and mathematics classes; nurture students' academic talents; provide out-of-school enrichment programs; and support students with an after-school study program, The Learning Club. Ingenuity is a citywide program hosted by three middle schools—Hamilton, Mount Royal, and Roland Park—and by Baltimore Polytechnic Institute. Ingenuity's curriculum, which spans middle school and high school, keeps students on a path to competitive colleges and valuable scholarships.

In addition to academic classes, students learn about careers in science, technology, engineering, and mathematics-based fields. Minorities and women, now underrepresented in STEM professions, are encouraged. This real-world exposure has a positive impact: 71 percent of Ingenuity graduates are working in STEM professions.

INGENUITY STUDENTS

Ingenuity enrolls a socio-economic group diverse in race, gender, and economic security. In addition to the 30 percent of the enrollment who qualify for free/reduced lunch, the program also enrolls children of middle-class families and of professionals—architects, lawyers, bankers, college professors, and even a Nobel Prize winner.

STUDENT AWARDS

Throughout the school year, Ingenuity students earn recognition for their achievements in an assortment of competitions. Some include the Intel Science Talent Search, Intel International Science and Engineering Fair, Siemens Competition, Baltimore Science Fair, Maryland Junior Science and Humanities Symposium, Maryland Mathematics League competition, and others.

Intel International Science and Engineering Fair

After Nathan Greene won the Grand Prize in Physical Sciences, and Evan Smith won the Grand Prize in Biological Sciences at the 2013 Baltimore Science Fair, they advanced to compete at the Intel International Science and Engineering Fair in Phoenix, AZ.

Nathan Greene

won 3rd Place in the Grand Prize category 'Energy and Transportation' at the Intel International Science and Engineering Fair for his project, "A Study of Zero Crossings in Fractal-Generated Turbulent Signals."

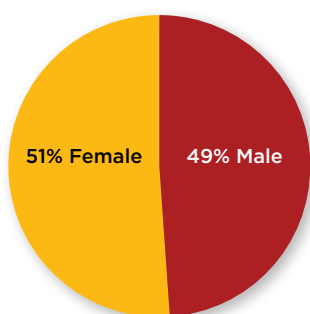


Evan Smith, an

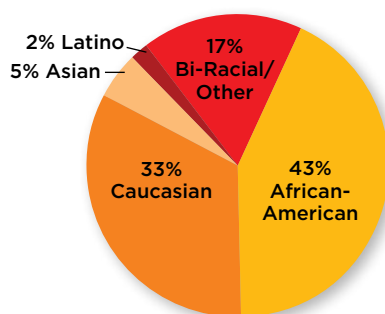
Ingenuity junior, was awarded the Bruno Kessler Foundation Award for his project, "PLGA Nanoparticles Encapsulating Anti-Vascular Small Molecules for the Treatment of Breast Cancer." The award included a trip to Trento, Italy, to participate in summer school Web Valley 2013. Evan also earned 3rd Place in the Maryland Junior Science and Humanities Symposium.



**INGENUITY AT POLY
STUDENT DEMOGRAPHICS BY GENDER**



**INGENUITY AT POLY
STUDENT DEMOGRAPHICS BY ETHNICITY**



student outcomes

The efficacy of The Ingenuity Project is assessed through ongoing program evaluation, test scores, and success in math and science competitions.

HIGHLIGHTS OF HIGH SCHOOL STUDENT PERFORMANCE



Sih Oka-Zeh, National Winner, Academic, Cultural, Technological, and Scientific Olympics (ACT-SO). She

will matriculate at Washington University in St. Louis, Class of 2017.



Gabriel Grell, The Ingenuity Project, Class of 2014, was the only Maryland participant on the U.S. team of the Pan-African Mathematical Olympiad held in Tunisia.

Noah Gamper, Gabriel Grell, Luke Sullivan, and Dara Wais, Ingenuity juniors, received the Milton Zaslow Award in Cryptology, sponsored by the National Cryptologic Museum for their paper, “The Effect of the Navajo Code Talkers on U.S.-Native American Relations After World War II.”

- Ingenuity 10th grader, Gus Meisner, earned undergraduate college credit in the pre-college program at Johns Hopkins University.
- Four Ingenuity students scored perfect 800s on the SAT/SAT 2: **Nathan Greene** (SAT 2: Math 2), **Raphael Kargon** (SAT 2: Physics and SAT Reading), **Joshua Spokes** (SAT 2: Chemistry), and **Stephen Timmel** (SAT: Reading).
- Twelve students were elected to the William R. King Chapter of the National Honor Society.
- Five students—**William Cameron, Nathan Greene, Da’Kuawn Johnson, Tran Quach, and Stephen Timmel**—received the Baltimore Scholars Award, a four-year full scholarship to Johns Hopkins University. Since the inception of the Baltimore Scholars Program, Ingenuity graduates have comprised more than one-half of its enrollment.
- **Da’Kuawn Johnson** was named “Scholar of the Year” by the College Bound Foundation.
- Five students—**James Graham-Hayes, Nathan Greene, Zoe Krulak-Palmer, Ned Pollard, and Stephen Timmel**—were commended by the 2013 National Merit Program.
- **Raphael Kargon** was the Baltimore City winner of the University of Maryland College Park High School Math Competition.
- The American Mathematics Competition awarded **Juliet Bishop, Jack Mountain, and Evan Smith** “Best Problem Solvers.” **Juliet Bishop** qualified for the American Invitational Mathematics Examination.

Research lunch celebrating completion of a three-year Research Practicum. Pictured from left: David Nelson, research coordinator; Billy Lu; Da’Kuawn Johnson; Morgan Greene; Stephen Timmel; Will Cameron; Sih Oka-Zeh; Nathan Greene; Joshua Spokes; Ned Pollard; and Dolores Costello, executive director.



Annual Celebration Of STEM Achievement, April 2013

David Asai, Ph.D., senior director of science education, Howard Hughes Medical Center, was the guest speaker. Lead Sponsors: Johns Hopkins University Office of the Provost, in partnership with the Whiting School of Engineering, Stevenson University School of the Sciences, T. Rowe Price, Towson University, and the Baltimore Polytechnic Institute Foundation.



HIGHLIGHTS OF MIDDLE SCHOOL STUDENT PERFORMANCE

Ingenuity's large middle school program sets the stage for future success, whether in Ingenuity at Baltimore Polytechnic Institute or at any of Baltimore's citywide public high schools. These young students, naturally drawn to learning, form a cohort, a learning community to achieve ambitious goals.

Ingenuity's large middle school enrollment—375 students—embrace the Ingenuity experience. Nearly 90 percent of entering 6th graders meet the academic requirements and complete the middle grades program.

In 2013, Ingenuity promoted 115 8th-grade students who passed the Maryland State Algebra I High School Assessment and tackled rigorous science content which prepared them to successfully complete Calculus and other high-level of math and science courses in high school.

Middle school Ingenuity is designed to be a "feeder" for Ingenuity at Baltimore Polytechnic Institute. Following middle school, 59 percent enrolled at Baltimore Polytechnic Institute, and of those, 32 percent enrolled in The Ingenuity Project, a percentage we hope to increase. But regardless of which high school students choose to attend, graduates have become self-guided learners prepared to succeed at any of Baltimore's citywide public schools and in college.

At the end of each year, the Johns Hopkins Center for Talented Youth evaluates student achievement using pre-tests and post-tests in mathematics and science.

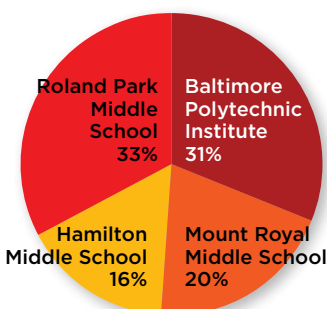
Students take the Sequential Test of Educational Progress (STEP). 6th and 7th graders showed overall gains in mathematics achievement; 8th graders do not

Pictured from left: Paul Lack, EVP Academic Affairs, Stevenson University; Kimberly P. Tucker, Director, Center for Environmental Sustainability, Stevenson University; Susan Gorman, Ph.D., Dean, School of Sciences, Stevenson University; David Asai, Ph.D., Senior Director of Science Education, HHMI; Carol Greider, Ph.D., Director of Molecular Biology and Genetics at JHU, Nobel Prize Winner

take the Algebra pre-test, but the post-test demonstrated that 73.8 percent of 8th graders scored in the top quartile with 35 percent scoring in the top 3 percent on the post-test. In science "students from each grade collectively made significant gains at the post-test when compared to their performance at pre-test" (2012-2013 Academic Year Program Evaluation, Johns Hopkins Center for Talented Youth).

The Rocket Launch is a highlight of the middle school year for 8th graders.

INGENUITY PROJECT ENROLLMENT



**The Ingenuity Project
gratefully acknowledges
the following contributions
received during the 2012-2013
school year.**



Adelani Adedoyin
Anne Albinak
David & Justina Apaw
Jan Babus
Gary & Kathy Bacon
Eric and Sandra Benzer
Roger Birkel
Martin & Carol Bishop
Patty Bond
Steven Borbash & Susan McCusker
Andrea Bowden, Ph.D.
Katie Brennan
Lawrence Brody & Sonye Danoff
Theresa Bruce (Class of 2005)
Jessica Campbell & Ema Pagliaroli
(Class of 2016)
Jana Carey & Ben Yuhas
Scott and Sharon Carson
Kristine Caverly
Joyce Chapman
Laverne Clark
George and Zoe Clarkwest
Zoe and Andrew Clarkwest
John and Conceicao Contee
Christopher & Dolores Costello
Donald Coulter
Marianne Debow
Elaine Doyle-Gillespie
Donald & Jackie Dunstan
John Easterling & Kathy Poole
Edward Edelenbos & Cori Rivers
Judith Egerton
Antti Eklund & Marikki Laiho
Andrea Erdas
Elmer Eusman & Barbara Pralle
Steven Farber, Ph.D.
Robert and Sandra Fink
Michael Fletcher
Karen Footner
Tucker Fulwiler & Anna Cantler
Tom Gamper
Joan & William Garlow
Catherine Gearhart
Arlene Gioia in Memory of Michael
Cretella (Class of 2010)
Jeffrey Gray, Ph.D.
Luanne Goodson Green
Elizabeth Harber & Henry Kay
Ryan Harrison (Class of 2005)
John & Nancy Harter
Stephen Hartmark
Chris & Beth Hayes
Michael Hill
Peggy Israel
Brandon Jones (Class of 2007)

Kenneth Jones
Darryl & Mary Jurkiewicz
Jeremy and Isabelle Kargon
Marcia and Robert Kargon
Jody Kavanaugh & George Wright
Ann Kehinde
Sarah and Terrence Kenny
Angela & Tom Kinlin
Sally Kutzer
Monica and David LaVorgna
Martin & Holly Lee
Bonnie Legro & John Timson
Claudia Leight
Elli Leontsini
David & Sharon Lucas
David & Jessica Lunken
Amy Macht
Dean MacKinnon & Catherine Washburn
Melissa Magill
Harry Malecki (Class of 2002)
Arna Margolis
Robert and Jane Marinelli
Robert McCarthy
Brandon McClain
Michael Meaney
Cecilia Meisner
Lee Miller
Stephanie Miller
Dana Mills
Alison Moliterno & Adam Snyder
Lisa Morgan & Tim Goldsmith
Jane Murphy
Christina Myers
Angela Natale & Ira Weinstein
Mark Newstadt
Helga Olafsson
Yngvild Olsen & Joshua Sharfstein
Kendal Orenstein
Adrian Palazzi
Luciene Parsley
Gary R. Pasternack, M.D., Ph.D.
Carl and Jennifer Pelton
Hugh & Susan Phelps
Raghu Raghavan
Rajeeve Ranadive
Darius & Monica Rastegar
Timothy & Joanne Regan
Stephanie Strauss Regenold
Jean-Luc Renaux & Kathy Helzlsouer
Carol Ritter
Gregory Rossman (Class of 2007)
Richard Roth
Kendall & Matt Rutherford—in celebration
of their wedding
John & Nancy Sacci

Enriqueta Sagastume
Stacey Samuels
Jody Sanford
Anthony Sartori
John & Lois Saylor
Eugene Schnell & Monika Springer
Yefim & Yelena Schwartz
Pamela Seng & James Weston
Dionisio Singco
Bill Smillie & Linda Rose
Maya & Arnold Spicinitkiy
Elinor Spokes
Charles Stahler
Ellen Stokes
Barbara Stricklin
David & Lois Sullivan
Chele Taylor
Lucia Tibbels
Jesslyn Timson (Class of 2005)
James Todaro
Jo Wais
Bruce Wallick
John & Kate Walsh
Tom Watson
Peter and Caroline Wayner
Angela Natale & Ira Weinstein
David & Karen Whitcomb
Susan Williams
Stephen Wilson
Peter Winch
Marion Winik

Foundations/Corporations

The Abell Foundation
Baltimore City Public Schools
Baltimore Polytechnic Institute
Baltimore Polytechnic Institute
Foundation
Eddie C. & C. Sylvia Brown Family
Foundation
Edward St. John Foundation
France-Merrick Foundation
Hamilton Elementary/Middle School
Johns Hopkins University
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Lockhart Vaughan Foundation
Lois and Philip Macht Family Philanthropic
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Stevenson University
T. Rowe Price Associates Foundation
Thomas Wilson Sanitarium for the
Children of Baltimore City
Towson University

STATEMENT OF FINANCIAL POSITION, JUNE 30, 2013 AND 2012*

	<u>2013</u>	<u>2012</u>
ASSETS		
Cash	\$113,136	\$108,471
Certificate of Deposit	—	10,593
Grant Receivable	30,846	76,348
Prepaid Expenses	—	1,302
Net Property and Equipment	68,675	51,376
Total Current Assets	<u>\$212,657</u>	<u>\$248,090</u>
LIABILITIES		
Accounts Payable	\$8,238	\$10,682
Accrued Salaries	14,655	37,423
Total Current Liabilities	<u>\$22,893</u>	<u>\$48,105</u>
NET ASSETS		
Unrestricted	\$189,764	\$299,985
Temporarily Restricted	0	0
Total Net Assets	<u>\$212,657</u>	<u>\$248,090</u>

STATEMENT OF ACTIVITIES, JUNE 30, 2013 AND 2012

	<u>2013</u>	<u>2012</u>
Revenues and Other Support		
Baltimore City Public School System	\$368,000	\$391,000
The Abell Foundation	485,000	455,800
Foundation and Corporate Grants	89,430	106,000
Other Revenue	100,319	61,782
Total Revenues and Other Support	<u>\$1,042,749</u>	<u>\$1,014,582</u>
Expenses		
Program Services	\$831,958	\$829,943
Management and General	192,274	178,803
Fundraising	28,738	30,607
Total Expenses	<u>\$1,052,970</u>	<u>\$1,039,353</u>
Change in Net Assets	(10,221)	(24,771)
Net Assets at Beginning of Year	199,985	224,756
Net Assets at End of Year	<u>\$189,764</u>	<u>\$199,985</u>

*Above are selected components from the 2013 audited financial report.

Total student enrollment: 528

Cost per student: \$1,994



Ingenuity AP Chemistry class and Johns Hopkins University (JHU) students with Dr. David P. Goldberg, Principal Investigator, The Goldberg Research Group, Department of Chemistry, JHU (far right).

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