

## **SASCS' Focus on Project & Team Development Leads to Success in Science & Math Competitions**

### **Syracuse Academy of Science Charter School (SASCS)**

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In preparation for college, career and citizenship, Syracuse Academy of Science Charter School (SASCS) trains students to think critically and creatively by attaining strong skills in mathematics, science, language, technology, history, and the arts.

SASCS serves a racially and culturally diverse student body, with a majority of its students living near or below the poverty line. Located in Syracuse's inner city, students receiving free and reduced lunch have comprised 75%-81% of the 300 (2003-2004, Grades 7-9) to 470 (2011, Grades K, 1, 6-12) students attending SASCS since opening its doors on September 3, 2003. Over the past three academic years (September 2008-2009, 2009-2010, 2010-2011), the ethnicity of the student population has averaged 57% African American, 23% Caucasian, 10% Hispanic, 4% Asian, 4% Multi-Racial, and 2% Native American Indian.

It takes a devoted staff to help students thrive despite economic disadvantages, a staff willing to dedicate after-school hours, weekends, holidays and summer vacation toward that goal. In addition to contractual obligations to remain a minimum of two days each week until 5:00 pm for tutoring or instructive assistance, teachers make at least 12 weekly contacts to parents or guardians to discuss students' progress, and complete four annual home visits, all in an effort to ensure students' maximum achievement and to strengthen the cooperative bond between school and home.

Beyond these contractual obligations, teachers receive support and encouragement to facilitate academic programs, such as MathCounts, Science Olympiad, and international events. For example, the science department staff works as a team with three teachers overseeing an equal number of students' extracurricular projects, while a fourth teacher trains student groups for the subject-matter knowledge portion of the competitions. Based on the results of the competitions, the science staff then receives bonuses.

**SASCS Mission:** Based on our motto, "Building success one 'Atom' at a time!" it is the mission of SASCS is to provide challenges and opportunities for students and to instill the necessary skills and knowledge needed for the rest of their lives. SASCS aims to create a partnership among the triad of student-teacher-parent that will provide our youth with the support necessary to reach their highest potential—intellectually, socially, emotionally and physically. Since adolescents thrive in a diverse environment, we strive to create a variety of learning opportunities and to integrate multi-cultural aspects into our curricula.

**SASCS and Onondaga County:** At SASCS, we see ourselves as an educational option for parents within Onondaga County, as opposed to an alternative. Located in the Syracuse City School District (SCSD), SASCS administration frequently visits SCSD administration in an ongoing effort to be visible and transparent, showing our positive attitude through sharing information and plans. Our transparency assists in the creation of a trusting and cooperative relationship. To maintain accurate and detailed documentation, we solicit SCSD opinions, particularly in regard to expulsions. In all press releases or media interviews, we stress that the schools in the district are working to the best of their abilities and have a variety of strengths. With many of SASCS' strengths stemming from our size and our ability to provide one-on-one attention, we continue promoting our strengths by focusing on positive aspects.

**SASCS Partners:** Syracuse Academy of Science Charter School collaborates with business and educational resources to accomplish our goal of strengthening the quality of education provided at SASCS.

In addition to SASCS' annual participation in Bristol-Meyers Squibb's science camp, the school's external educational Resources include the Syracuse City Public Schools, SUNY Oswego, Syracuse University and SUNY ESF. The Summer Science Awareness program at SUNY Oswego accepts 12 of our students for one month into their campus where professors work with them individually on different scientific

projects. During this science-filled month, students focus on their hands-on experiments and live on the campus, giving them a sense of college life as early as sophomore year. Since SASCS is college preparatory school, the SUNY Oswego program initiates an attitude of "I can do college!" in attendees. Students' projects are of a far greater complexity than those typically encountered at school science fairs, thanks to support from SUNY Oswego personnel, and the ability to use complex machinery as part of their experiments. Even while receiving a small stipend through the university, students far and above value the campus life experience – even the buffet style meals!

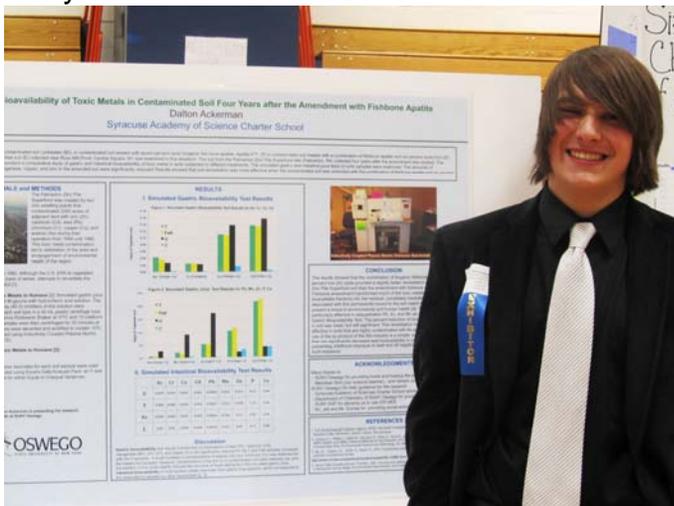
As part of Nation Science Foundation grants in biotechnology, computer science and chemistry that Syracuse University (SU) expects will be available in the 2011-2012 year, SASCS will be among the participants. Under these grants SU will be offering workshops for teachers and students who are interested in those science areas and one-on-one summertime work in the college.

SUNY Environmental Science & Forestry ESF has an established a program with 35 different schools throughout New York State, and SASCS is one of two charter schools that are able to participate in this program. Through this program, ESF is offering college level courses to high school students. For students passing the courses, the college credits are transferable to all SUNY schools as three general education credits.

### **Science & Math Participation and Performance Emphasized:**

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For eight consecutive years, SASCS science staff has been guiding junior and senior high students through project and knowledge preparation by drawing on a combination of after school, Saturday, and tutelage in a variety of summer programs such as the Bristol Meyers Squibb Summer Week for junior high students, and the SUNY Oswego Summer Science Immersion program for senior high students. These additional preparatory hours position our students to experience academic success rates in the classroom, on standardized assessments, and in competitive arenas that would not likely occur if student-teacher interactions were limited to 45-minute classes.



In Central New York region, between 2004 and 2011 SASCS has been the only charter school to participate in the math and science competitions we have attended, with our students successfully competing against elite private and well-funded suburban schools. Also, there have been many competitions in which SASCS represents the sole inner-city school, including Science Olympiad competitions.

Because of successes our students continue to experience, SASCS is tracking data regarding student participants since 2007 who we were able to motivate to join academic teams, complete projects and enter competitions and fairs. The data may show a strong correlation between extra-curricular academic participation,



increased college acceptance and successful completion of a bachelor's degree within four years. In cooperation with our surrounding universities, SASCS will make this information available in the form of a research paper and share the data in the near future.

As an additional challenge for our highly motivated students, we offer seven Advanced Placement classes (Biology, Chemistry, Physics, Calculus, Computer Science A, US History, and English Literature and Composition). Plus, our course selection includes many science electives that give students fundamental exposure to applied sciences.

### **Science Fair:**

Starting with its school-wide emphasis in science experimentation and presentation skills through its internal competition, the annual Science Fair, Syracuse Academy of Science Charter School students are quickly becoming a force to be reckoned with in local and regional math and science competitions.

Each winter, in a two-month long processes guided by science teachers, high school science students in every discipline are required to complete a science project demonstrating an understanding and application of scientific methods (hypothesis, experiment and conclusion). Judges from local colleges (SU, SUNY Oswego, ESF, LeMoyne) evaluate each student's project, and students present their experimentation process and findings at least three times during the afternoon competition. In addition to gauging each presenter's fluency and poise, judges determine projects' worthiness according to their adherence to scientific methods and concept inventiveness. Top projects are selected for further competition at the Greater Syracuse Scholastic Science Fair.

### **SUNY Oswego Science Immersion Program:**

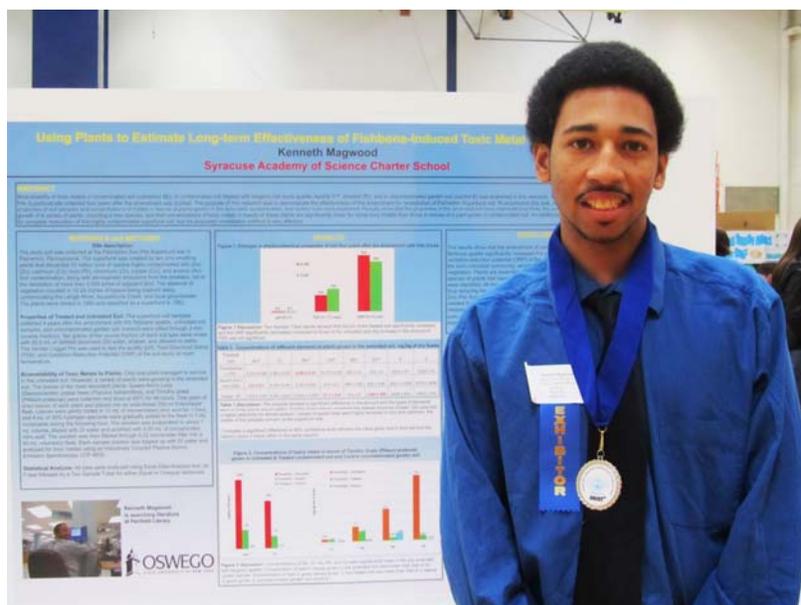
In 2009 and 2010, high school students participated in a summer program at SUNY Oswego. There they learn science disciplines under the guidance of Oswego professors, and improve their lab skills. The students dorm on the SUNY campus for four weeks, eat their meals in the cafeteria, and get a taste of what college life is like. In 2009, three students participated in this program. After a successful initial year, the student interest and involvement increased with ten students attending in 2010.

Students are required to start a science fair project during this program for SASCS' internal competition in late fall, and then participate at the Greater Syracuse Scholastic Science Fair (GSSSF) in early spring. Exceptional projects are presented at competitions such as I-SWEEEP, INTEL and other international and national science fairs. Participation in summer programs and competitions also serve as a launching point for student careers, leading some students, like senior Charlene Murray, who participated in the 2010 SUNY Oswego Science Immersion Program, to decide that a career in chemistry is just right for her.

### **International Sustainable World (Energy, Engineering, and Environment) Project Olympiad (I-SWEEP):**

Open to middle and high school students, I-SWEEP works with local, national, and international science fair organizations to bring together the top-ranking participants and qualify projects from these competitions.

In 2010, two SASCS students qualified to participate in this event. Kenneth Magwood and Kory Pierre traveled to this international competition held in Houston, Texas. After three days of meeting and sharing ideas with over 800 young scientists from as far away as South Korea and Argentina, Kenneth came away from the competition with a bronze medal for third prize in his area of competition.



### **INTEL International Science and Engineering Fair:**

The Intel International Science and Engineering Fair, a program of Society for Science & the Public, is the world's largest pre-college science fair competition. Each year, more than six million young scientists from around the world vie to attend and 1,500 are selected as finalists to share ideas, show case cutting edge ideas and

compete for over USD \$4 million in awards and scholarships. To judge the projects, more than 1,000 science, engineering, and industry professionals volunteer at the Intel ISEF.

In 2011, junior Kenneth Magwood, who attended the Oswego Science Immersion Program and won multiple awards at the GSSSF competition, received the honor of selection to present his project, "Using Plants to Estimate the Long term Effectiveness of Fishbone-Induced Toxic Metal," at the INTEL competition in Los Angeles in May 2011.

### **Science Olympiad:**

Since 1986, Science Olympiad has led a revolution in science education, becoming one of the premiere science competitions in the nation, providing rigorous, standards-based challenges to nearly 6,200 teams in 50 states. Science Olympiad's ever-changing event lineup provides a variety of career choices and exposure to practicing scientists and mentors.



The school encountered early success in 2006 by placing second in the Science Olympiad Chapter, and has experienced a steadily increasing pace of success as our students became competition veterans and our staff gained a complete understanding of competition expectations.

Since 2005, SASCS has successfully participated in the Division B (Middle School) Science Olympiad Competitions, bringing 15 of our students each year who have cross-trained in science disciplines in preparation for competition in a variety of events with an emphasis on active, hands-on group participation. Through commitment, coaching and practice throughout the year, this apprentice and mentoring program improves the quality of our science education, increases student interest in science and provides recognition for outstanding achievement in science education to both students and teachers.

### Results:

Entering solely in the B Division in 2011, SASCS competitors achieved awards in six categories ranging from 2<sup>nd</sup> through 6<sup>th</sup> place, and coming out 10<sup>th</sup> place overall. In this competition, as is typical in many events in which our students compete, SASCS was the only inner-city school participating.

In 2010 Division B competition, SASCS student teams earned two 3<sup>rd</sup> place awards, one 4<sup>th</sup> place and 2 5<sup>th</sup> place for a variety of science projects based on topics from ornithology to disease detection.

That same year, three Senior Division Science Olympiad participants were selected to continue on to an international competition in Texas. At that competition, Kenneth Magwood, Dalton Ackerman and Kory Pierre placed 3<sup>rd</sup> among 30 senior division projects. They also won the Wiley & Sons award for excellence in Chemistry, Physics, and Space Science.

Science Olympiad Division B teams in 2009 took 10<sup>th</sup> overall, while in 2008, two 8<sup>th</sup> graders took first place in tower building, followed students who earned one 2<sup>nd</sup>, three 3<sup>rd</sup> and one 4<sup>th</sup> place medals. In the preceding year, the students of the SASCS Science Olympiad Team were acknowledged as the "#6 Best 2007 Team" out of 27 area school districts competing. The student teams walked away from the event after earning medals in nine different categories.

### **Greater Syracuse Scholastic Science Fair (GSSSF):**

Each spring The MOST hosts the annual Greater Syracuse Scholastic Science Fair, now in its 32<sup>nd</sup> year, inviting participants in grades 5-12 from public, private and home-schooled venues located in Onondaga, Madison, Oswego, Cayuga, and Cortland counties. Here, budding scientists compete to win scholarships, recognition and the opportunity for their projects to be selected for presentation at upcoming national and international conferences.

## Results: 2011

Out of the many high schools participating in this event, Syracuse Academy of Science came away with six top awards and 12 special awards in the senior high division, including a \$10,000 scholarship awarded to junior Stacy Draper, and a full expenses paid trip to compete in the largest international science fair in the world, Intel International Science Fair in Los Angeles awarded to junior Kenneth Magwood, and a chance to compete for \$4M in scholarships.

With a tip of the hat to its dedicated science department personnel who endeavor to carry out the school's mission of "Building success one 'Atom' at a time," Syracuse Academy of Science congratulates its 17 participants as well as those students who came away from the event with top awards including:

Dalton Ackerman – High Honor Medal; one of three projects chosen to present at the New York State Science Congress; Lockheed Martin Science & Technology Award; American Chemical Society Certificate of Excellence Genius Olympiad Exceptional Genius Award



Stacie Draper – SUNY Cortland Science Leadership Scholarship for \$10,000

Jasmin Eatman – High Honors Medal; The American Psychological Association Award

Kenneth Magwood – Highest Honors Medal; one of two projects chosen to present at the Intel International Science and Engineering Fair, May 8-13, 2011 in Los Angeles, Ca., American Chemical Society Certificate of Excellence Genius Olympiad Exceptional Genius Award; The Yale

Science and Engineering Association Inc. for Most Outstanding Eleventh Grade Exhibit in Computer Science, Engineering, Physics or Chemistry

Charlene Murray – American Chemical Society Certificate of Excellence Award in Chemistry; Syracuse Book Award, Cornell Women's Club of Syracuse; U.S. Metric Association Award

Kory Pierre – Honors Medal; United States Air Force Certificate of Achievement, Certificate of Recognition  
ASM Materials Education Foundation, 2011 Regional RICOH Sustainable Development Award, Intel Excellence in Computer Science Award (\$200 Cash)



James Seegars – United States Air Force Certificate of Achievement

Alperen Sirin – Honors Medal; Lockheed Martin Science & Technology Award

Joshua Turnquest – Honors Medal

2010:

Four of SAS' Senior Division competitors received top awards at the GSSSF, enabling three of them to continue on with their projects for competition at the STANYS New York State Science Congress and two also heading for competition at I-SWEEP, in Houston, Texas.

Dalton Ackerman – High Honors; ASM Material Education Foundation Award

Kenneth Magwood – High Honors; Mu Alpha Theta Society in Mathematics; National Society of Professional Engineers

Kory Pierre – High Honors; Mu Alpha Theta Society in Mathematics; National Society of Professional Engineers

Stefan Terino – Honors Medal; Syracuse University Scholarship Award, worth \$20,000 over four years at SU; Special awards from Society for InVitro Biology

### 2007-2009:

Despite missing out on this event in 2008 and having earned only one Sr. Division honorable mention in 2009, 2007 was a banner year for SASCS competitors. In 2007, twelve students (eight students- Junior Division and four student-Seniors Division) from Syracuse Academy of Science Charter School entered the Greater Syracuse Scholastic Science Fair at Corcoran High School, collecting the following accolades: Honors medal, ASM Materials Education Foundation award, Central New York Skeptics award, National Society of Professional Engineers award, Lockheed Martin MS2 award, Scientific American Magazine award, Honeywell Summer Science Camp at the MOST, and the U.S. Army Research Laboratory award.



### New York State Science Congress:

The STANYS New York State Science Congress was established in 1950 as a means to stimulate interest and proficiency in the sciences. Students with outstanding projects are selected to participate in the state level event held at a host institution in late May or early June. The students present their research orally to judges, community observers, and other students, in a lecture format. They are judged on the quality of their work, as revealed by their written and oral presentations.

In 2010, Dalton Ackerman, Kenneth Magwood and Kory Pierre each placed high enough overall in the senior level to be given the honor of representing Central New in Albany at the New York State Science Congress in June. They were placed fourth within New York State.

Jasmine Eatman and Dalton Ackerman will be representing SASCS in the upcoming 2011 STANYS conference.

## **MathCounts:**

At the beginning of each school year, all students in grades six through eight are invited to join the MathCounts team through performance on a qualifying exam. The top sixteen students form the team, and of those, ten are selected to enter a variety of competitions throughout the year. Beyond the possibility of winning awards and traveling to a variety of competition and study venues in the Eastern United States, the extra math studies help these teammates to perform better in their regular math classes and prepare for Algebra in 9<sup>th</sup> grade.

The MathCounts team commit to gathering at school on Saturday mornings to study for approximately 20 consecutive weeks. As both a reward to the faithful and as part of the school's mission to expose students to the academic opportunities available to them, the MathCounts teams have attended intense, three-day fall study camp over the Columbus Day weekend at Harvard and Massachusetts Institute of Technology in 2010



and 2011, and four-day winter study camps at New Jersey Six Flags (2006), New Jersey Institute of Technology (2011) and Cornell University (2010). Because part of the competition includes teamwork, the MathCounts team also attends team-building activities to strengthen friendships and knowledge of one another's strengths including horseback

riding and go-carting.

As a result of their hard work, the SASCs MathCounts Team won the 2nd Place in Central New York Chapter Competition at Lockheed Martin Corporation in 2011, and first place at the annual MathCounts competition in 2010. The MathCounts team win qualified them to participate in the state competition, representing Central New York to be held on March 13th, 2010 at the Rensselaer Polytechnic Institute in Troy, NY. Our team members also earned individual awards: Magdhi Hill, 1st Place; Dalton Houde, 2nd Place; Larissa Knodel, 4th place. First Place Team members: Magdi Hill; Dalton Houde; Larissa Knodel; and Said Sirin.

## **SASCS Facts and Figures**

### **The Geographic Area:**

Located in Onondaga County, Syracuse is the region's major metropolitan center. It has been appropriately called the Crossroads of New York State, due to its central location and the fact the State's two major interstate routes the east-west New York State Thruway (Interstate 90) and north-south Interstate 81 intersect here. SASCS is located on Syracuse's West Side, minutes from Armory Square, Downtown, Syracuse University, & Carousel Center, in an area of the city which includes regional locations known as Strathmore, Tipperary Hill, Belle Terrace, and Winkworth.

### **SASCS Charter Term:**

Authorized by the New York State Board of Regents, SASCS is a charter school. In the 2011-2012 school year, it will serve students in grades K-2 and 5-12 and has an approved full enrollment of 588 students. It was granted a charter by the Board of Regents in 2002, and the school was open for instruction in September 2003. During this 2010-2011 school year, SASCS is in the eighth year of operation. It will apply for its second five-year charter renewal in July of 2012.

### **Syracuse, NY Statistics:**

**SASCS** is located within the Syracuse City School District in Syracuse, New York and, like many cities, residents of the area face challenges. They include:

- As the fifth largest city in NYS, Syracuse has endured a 15% population decline in the past 30 years.
- In Syracuse, 31.7% of individuals live in poverty versus 14.2% in NYS and 14.5% in the U.S.
- SASCS's 2010-2011 free and reduced lunch student population is 76%

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