Introduction

Over the past year, the Saturday Science Academy (SSA) made significant progress in providing over 250 youth each session, with opportunities to enhance their skills in math, science and technology. Through classroom didactic sessions, field trips, tutoring, mentoring and with mandatory parental involvement, the Saturday Science Academy successfully engaged youth in the process of sharpening their academic and social skills while making it fun to learn.

Each phase of the SSA program contains eight Saturday sessions, each lasting approximately three hours. Marine Biology and The Human Body are taught during the first two sessions with the third session theme alternating between Plant Life and Natural Science. Children participate in workshops covering dissection, skin and bones and doctor days. These participants are exposed to animal life, medicine, physiology, aerospace technology, tutoring and mentoring and laboratory research using actual tools and equipment.

Junior White Coat Ceremony

The year started off with its fourth Annual Junior White Coat Ceremony on Dr. Martin Luther King, Jr. weekend. The White Coat Ceremony is a nationwide medical school activity established by Dr. Arnold Gold at Columbia University Medical School in 1993 to signal the transition of medical students from book learning and lab work to the world of clinical practice and the direct interaction with real patients. The SSA Junior White Coat Ceremony embraces the spirit of this exercise but is appropriately modified for 200 SSA students who have completed a year of SSA program experiences and challenges. Each student received a white "doctor's" coat. The purpose of the Junior White Coat Ceremony is to inspire the students to commit to lifelong learning. After ceremoniously receiving the appropriately fitted white coat, these scientists of the future repeated the following oath:

> *I, as a student of Charles R. Drew University's Saturday Science Academy II, promise by this oath that I shall treasure what I have learned in this program and continue my quest to higher education. Despite the obstacles that I may face in the future, I shall recognize that I have the power to overcome them and become a better person. And to show appreciation to these who have taught me, I shall accept the responsibility to teach others and to share my knowledge with everyone. I shall uphold these values to the best of my ability.*

This grand ceremony was attended by a number of dignitaries, legislators, physicians, principals and community officials. The event is promoted so that parents and students know that Drew University commits to being a lifetime partner in supporting SSA students to achieve their educational aspirations. A Health Fair followed the ceremony where youngsters were able to demonstrate their health screening abilities.

Marine Biology

Early winter, the students started off with Marine Biology. They learned about seven classifications of sea life in class which are, K*ingdom, Phylum, Class, Order, Family Genus and Species.* This very interesting class is directed by College of Allied Health Physician Assistant students and other University students. They are very knowledgeable on the subject of sea life and showed a lot of patience as we experimented and tried to understand the class for our children's lives. After learning the classifications, the students were allowed to dissect such sea creatures as star fish, jelly fish and octopus in the class. Through the use of scalpels and other instruments, they examined the anatomies of these sea animals. They also dissected tide pool specimens in the class. Some of the things they dissected were clams, sea snails, sea anemones, and sea urchins in class. Children also explained how and where sea creatures live and how they support themselves.

Marine Life Field Trip

Marine Life came alive for students through the experience of two field trips planned to engage their minds, their imaginations and their senses. Over 200 students boarded buses to travel to Long Beach to visit The Aquarium of the Pacific. Students were exposed to a wide variety of marine information and were excited to experience exhibits to help them understand oceanography. They enjoyed seeing and touching replica creatures in the lobby including a huge whale and a sea turtle. At the Touching Tank, students were able to see, smell and touch sea creatures including sea hares, prickly urchins, starfish, limpets and anemones. They were able to experience tide pools and to consider protection and ecology of the ocean environment. It was wonderful to watch their excitement as fun and new experiences were integrated with learning.

The second field trip was also an incredible experience as students took a voyage in search of whales on their migration along the Southern California coast. Over 200 students, parents and staff went on the whale watching field trip. It was a spectacular experience. Students and parents were able to observe diversity of marine life (and seabirds) and to experience excellent views of whale behavior. The program whetted students' thirst for knowledge about research and they asked questions regarding migration patterns, how whales and dolphins are identified and what their feeding habits are like. Many of the younger children will never forget how big "fish" can be! We feel that it is important to foster this symbiotic relationship between experience, textbook science and classroom presentations in order to foster deep interest and leadership skills for future doctors. As "extras", students add to their knowledge of the oceanographic data and environmental diversity. It was also wonderful for parents to have an opportunity to get to know each other better in an informal atmosphere while having fun and bonding with their children.

Parents were pleased to be able to have hands-on involvement with planning for their children and learning how trip details are handled. Staff members spent most of their time supplementing the educational experience for the children through answering questions and explaining science issues to the

students. A special part of the program included the opportunity to meet with experts in the field who addressed such questions as "How deep is the ocean, really?".
Field trips provide a sense of exhilaration that increases motivation for parents to include their children in the program and to participate whenever possible themselves. An unexpected bonus of this program has been the empowering of parents to communicate with each other and share their experiences in order to be stronger supports for their children. This is definitely in process, as parents communicate on a continual basis and help each other to problem-solve, share community resources and to stay positive in the face of everyday disappointments and setbacks.

Plant Life

Late Spring, early Summer! As temperatures warm, we search for ways to invite new growth into the classrooms. Plant a seed, design a garden, or investigate the life of a worm. We welcomed the new season with those activities and a crop of others. We believe that the positive experiences kids have in the garden, especially at an early age, provide a vital foundation for developing a lifelong ethic of stewardship for the earth.

There are many ways to include gardening in classroom activities. The tried and true way to incorporate plant and gardening is to have students germinate seeds in cups or pots in the classroom. Radishes, marigolds and bean seeds are favorites because of their quick germination and ability to keep growing, even under less than ideal conditions.

Learning science through gardening is a natural for children and it's exciting for teachers to experience their students' wonder in watching a seedling unfurl, a flower blossom and the fruits of their labors appear! All classes planted seeds in a garden dedicated to SSA students and learn the missing steps between seed and supermarket. They also used a virtual Garden Planner which tested their landscaping skills or prepared them for the planting of an actual garden by designing a garden plot. The site enabled students to select plants, read about their needs and lay out a garden on a grid. We extended this activity with graph paper and the students put together an ideal garden of plants for a plant section of their schoolyard.

Plant Life field trip

Approximately 200 Saturday Science Academy students attended the Plant Life Field Trip at the Topanga State Park in Santa Monica. Students participated in activities such as hiking and picking fruit. They enjoyed seeing and touching various animals including snakes, frogs and insects. The children also had a wonderful time walking, running and playing games. Academically, this trip enabled the students to put theory into practice. After the positive experiences the children had in the garden at Drew, they were able to watch a seedling unfurl, a flower blossom and the fruits of their labors appear.

A class went hiking about two miles up into the Santa Monica Mountains. As they got to the Planting spot, a guide gave us an introduction about what they would be doing. He talked to the students about how the forest fire began. The mountains were burnt badly in the forest. The children thought it was amazing at how burnt the soil was even as they dug to plant the trees. While exploring, the students

spotted two deer on another mountain. As they returned to the rest of the SSA students, they had another introduction about how to plant the trees. They found out after a hole was dug by the auger, they would put the tree in the ground to see the correct ground height, then take the cover off the plant and put the tree in and cover it with dirt. And last, put a black sheet over the tree so that the right amount of water goes in.

The field trips were especially helpful in bringing to life the scientific concepts taught in the classroom.

The Human Life

The curriculum for the fall session (October through December) focused on Human Life. At an age-appropriate level, all students are taught about human life. Learners participated in a variety of activities designed to help an awareness of work and careers and the relationship of education and health in their future. The curriculum on human life helps the learners explore the body system and gain an understanding of how it relates to the entire body. Learners role play ophthalmologists, otorhinolaryngologists, exercise physiologists, cardiologists, orthopedic surgeons and hematologists.

Human Life Field Trip

A field trip was conducted to round out study of our theme, The Human Body. SSA students attended the IMAX theatre at the California Science Center at Exposition Park to see a film titled *The Human Body*. This wonderful presentation, projected on a screen seven stories high, allowed SSA students to see physiological processes of the human body in new and dynamic ways: watching a family go through a day, visualizing the tremendous amount of activity that happens inside their bodies. Many of the SSA children were amazed to see an X-ray depiction of a young boy riding his bike as well as a graphic visual trip down the esophagus to watch food churn in the stomach. Students were able to experience these events as the movie used special effects including thermal imaging as well as x-ray and computer graphic technology. It was quite an instructive presentation enjoyed by all of the SSA students, their siblings and parents. Lunch was served following the movie.

Parent Participation Phase

Parents who have children enrolled in SSA continue to be required to volunteer for at least 15 hours per year. Committees continue to function according to need. The Field Trip Committee handled the planning and details of trips to the Aquarium of the Pacific Museum, Whale Watching trip and the Santa Monica Mountains. They look forward to being instrumental in the planning and implementation of future field trips.

Currently, the Fundraising Committee is becoming active with a goal of raising money for the Saturday Science Academy, planning the first Annual Dinner Cruise this summer. The committee, currently with 10 members, expects to do additional planning, provide community exposure for the Saturday Science Academy story and accumulate funds for a quality building and possible program expansion.

The Saturday Science Academy enters into a partnership with parents to help their children learn and augment the skills their child develops during each phase of the Academy. Workshops focus on helping parents learn how to assist their child as early as preschool.
The workshops show parents how to:

- Create learning environments for their children
- Develop joint projects
- Select books, videos, software, and other learning materials

Parents of elementary school children learn how to help their children develop study skills and work habits. Information on checking homework, using tutors, parent/teacher conferences and exam preparation aid parents in reinforcing the material their children are learning in school and in the Saturday Science Academy. High school preparation workshops inform parents about college admission requirements, entrance exam preparation, college application procedures, financial aid information and staying in college.

SAT Test-Taking and Problem-Solving Skills Workshop

The SSA continues to Partner with the Drew University and UCLA Center of Excellence (COE) to offer the Scholastic Achievement Testing (SAT) Preparation Enhancement Skills workshops for 21 students, grades 9 through 11. Considerable progress has been made in the area of understanding our students and how to best serve the needs of this often difficult, at-risk population. For example, initial results from pre - and post-tests in the SAT Preparation class were puzzling. It seemed that pre-test findings were higher than the post-test results for a number of students and in addition, their performance did not match their pre-test scores. Investigation revealed that students had taken the pre-tests at home and solicited assistance with answers because they really wanted to perform well. Our new strategy includes tight, frequent test-taking conditions. At the end of each SAT class period, students have the opportunity to give feedback – what they found difficult that day and what they want to learn next time. Often the instructor is surprised at their responses. We have also learned that it works better for classes to separate SAT classes by ability levels for academic content as well as test taking strategy sessions. SAT students need constant support and parents are encouraged to make sure that students always come to class with their primary needs for food, sleep and exercise having been met. Instructors are making a special effort to keep up the energy level of this class. SAT guest speakers have been exceptional and students have really enjoyed their presentations. Current plans include inviting speakers who can inspire students with Cardiopulmonary Resuscitation (CPR) and/or Emergency Medical Technician (EMT) training. Funding is currently being sought to purchase resuscitation dummies.

High School Exit Exam preparation

The SSA also provides for an intensive preparation course for the California High School Exit Exam (CAHSEE). This course is designed to prepare 10th graders (and 11th graders who haven't passed it yet) to take the California High School Exit Exam. It also helps 9th graders prepare, even though they will not take the test until they are 10th graders. The course begins with a diagnostic test that

determines the areas in which the students need the most assistance. After the diagnosis each student receives an individualized folder of lessons that addresses each of the standards that they need help on. Each workshop begins with a mathematics warm-up (most of the students are having trouble with the math) using questions from the CAHSEE Released Test Guide. The students receive a review in the mathematics content as well as strategies for answering multiple choice questions. The students have an opportunity to work on their lessons individually or in pairs (depending on if they have the same lessons). After the student finishes a section, they will be assessed on that particular set of standards.

In addition to the mathematics strategies and individualized work, the students review writing strategies (there are six possible types of essay compositions for the CAHSEE). The students review one strategy per week.

Our mentoring program is expanding in a few interesting directions. We are pleased to note that six male volunteers were willing to serve as mentors. These young men have started to get to know the youngsters they will be mentoring through informal discussions and ball games. At another level, our Medical Director, Dr. Kim West, has begun to mentor a medical student (SSA teacher) interested in pediatrics and adolescent medicine while providing medical oversight services to the SSA program. Parents continue to demonstrate support for the program and a few have found it helpful to use SSA tutoring services for themselves. These activities help us meet our goals of program enrichment and expansion.

Tutoring Assistance

Tutoring activities complement the Saturday Science Academy program. Over 100 students were tutored one on one during the year. The tutoring program is for SSA students and other career enhancement program students. Tutoring sessions are for both individual and group learning. Students are evaluated in order to determine the type of tutoring most suitable for his or her learning needs. The tutorial sessions are built on reading, writing and math. Student and tutor spend considerable time working with the homework activities from their particular school. Tutors are volunteer medical students from Drew University and the King/Drew Medical Magnet High school. Occasionally, peer tutors assist with this activity. Through providing tutoring assistance, teachers get more information about how children learn, the various levels of exposure they have to various subjects at their home schools and how to best address deficiencies.

As a result of testing in math, we learned that we needed to develop a more rigorous assessment tool in order to increase our ability to identify the strengths and weaknesses in the students' math skills and effectively address their needs. Also we need more one on one tutoring for each student on Saturdays and after school.

Evaluation

Program evaluation of the Saturday Science Academy serves several important internal and external needs. It is important that as a program we plan and then monitor activities that help us to achieve our

goals. As such, evaluations were completed by parents, teachers and the students themselves. Statements regarding each of those reports follows with examples of the forms/reports themselves.

Parents Evaluation Reports 2005: Parents completed written Program Evaluations regarding each session. All rated the program as Very Valuable, appreciated the administration/staff and would recommend the program to a friend. A summary of the results for a sampling of several parents is as follows:

2005
PARENTS PROGRESS REPORT

PROGRAM EVALUATION	VERY VALUABLE			NO VALUE	
Indicate the number of your Choice:	**5**	**4**	**3**	**2**	**1**
1. How valuable was this program to you overall?	(363) 92%	(33) 8%	0	0	0
2. How enjoyable was the program?	(375) 95%	(21) 5%	0	0	0
3. What was the best feature of the program?					
The majority of responders listed Fieldtrips, others mentioned homework, education, and schoolwork, animal dissection, and there were several mentions of SAT preparation, enthusiasm, math tutoring, lectures, and excelling for minority kids.					

Overall comments were extremely positive. Illustrative comments included the following:

- Very informative; my child learned a lot during each session
- I'm looking forward to the next session (This is great)!
- How my kids learned about dissections.
- Dissection and math.
- Great, need to add more hours to program.
- I wish to thank all the people involved with this wonderful program.
- This session was very educative and informative for both students and parents.
- Thank you all for exposing our children to science.
- The curriculum; fieldtrips; exposure to great parents.
- My child improved in math in home school.
- The program gives an opportunity to the child to advance and the valuable time spent with each child.
- The total interaction and hands on experience was great.
- Great!!! I love the guidance, care and concern here.
- All sessions are excellent.
- Dedicated, friendly teachers; this program is a blessing to the community.
- The administration was the best group of young women I worked with in a long time, they were helpful not only to me, but to everyone.
- The activities and the teachers were great.
- Keep up the good work!
- Hands-on experience was excellent.
- The Village concept that it takes a village to raise a child, this is true at SSA II.
- My Son's grades and behavior improved after one session from a 1 to a 3.
- I am so grateful to SSA II, the sponsor's and especially Ms. Grey the Director.
- The administration listens to concerns and act on it.
- Expectation; confidence building, and the educational component.
- Increase the space for other children on the waiting list.
- The program as a whole and the Jr. White Coat Ceremony
- This program must continue, and I will do whatever I can to help
- I am very proud/honored to have my son participate in the academy \Vocabulary, math and SAT prep.
- Learn the different body parts.
- Seeing the excitement in my child.
- Human Life Session was great! but not long enough.

Teacher Evaluation Reports: Teachers also completed written program evaluations regarding the three sessions. A summary of the results from a sampling of teachers is as follows:

2005
STUDENT PROGRESS REPORT

REPORT FORM	
MALES: 301	**FEMALES: 307**
1st thru 12th grades	**SUBJECT: Marine Biology, Plant Life and Human Life**

SECTION I – TEACHER/TUTOR				
	1. Excellent	**2. Good**	**3. Satisfactory**	**4. Poor**
Punctuality/Attendance	69%	24%	6%	1%
Follows direction	68%	22%	8%	2%
Gets along with others	70%	27%	3%	0%
Attitude in class	68%	25%	6%	1%
Cooperation	70%	23%	6%	1%
Participant willingness to work	69%	24%	6%	1%
Quality of work	67%	25%	7%	1%
Dependability	70%	25%	4%	1%
Appearance	82%	15%	3%	0%
Overall	70%	24%	5%	1%

Comments:

608 evaluations were turned into the office during the year.
Because of the comments of the students and parents we expanded the human life session for 2005.

Student Evaluation Reports: Students completed written program evaluations regarding all three Sessions.

SECTION II – PARTICIPANT MUST COMPLETE

1. This was my first exposure to a setting of this nature.

- No # 472
- Yes # 136

2. My most enlightening experience while at this site was:

- Dissecting
- Field trips; seeing what we learned in class, on the field trip.
- Learning a lot about the human body and how to eat right.
- Helping me with my homework; helping me with biology; helping me with my math.
- When we found out about hydrogen, oxygen and glucose.

▪ Health screening and Anatomy.
▪ Learning that food comes from the ground.
3. What I liked most about this experience was / what was most helpful to me:
▪ The field trip helped me with my homework.
▪ Getting help with my math.
▪ The teachers and dissecting.
▪ Learning about fish.
▪ Putting Doctor on all my papers.
▪ Hands on and dissecting fish, squids and octopus.
▪ Field trips to really see what the teachers were really talking about.
▪ When the teacher/tutors taught us about sea animals, verses human life.
▪ I liked that we made friends easily, and the tutoring was most helpful.
▪ That the teachers always checked my homework, and help me with it.
▪ Help me with my school work so I could go back to my home school and demonstrate to other kids in class.
▪ Helping me with my homework.
▪ When we got in small groups and did projects.
▪ Learning how to do essays, and I didn't really like it, but it helped me with my writing skills.
▪ It was educational most of the time.
▪ I liked when I learned about hydrogen and oxygen and I liked it when we did work sheets.
▪ When the things we were working on were the things I was working on in school.
▪ All the information I learned.
▪ Was coming to class and learning.
4. What I liked least about this experience was:
▪ I like everything about SSA.
▪ It is on Saturday.
▪ I don't know!
▪ Lectures
▪ That the program moves too quickly, would like to do more on the human body.
▪ Did not have enough time doing Human Life.
▪ Nothing!
▪ Was getting up on Saturdays.
▪ Doing a lot of math, but it helped me.

Concluding Statement

Enrolling children and young people from the African-American and Hispanic communities, the Saturday Science Academy plays a dynamic part in the process of creating future doctors, nurses, health workers and science professionals who may ultimately choose to serve distressed and underserved communities. The program intervenes at crucial times in the developmental period – when the direction of life choices may be influenced in positive or negative directions. Youth in the program are empowered to make appropriate life choices through education and enlightenment. They are able to have more control over their individual environments by enhancing and stimulating their instincts and their desires to learn in a non-traditional supportive atmosphere. To this extent, SSA serves as a supplemental educational environment that augments, complements and supports the traditional education system.

The reputation of the Academy is steadily growing and the community is excited about the availability of the academic enrichment services provided by SSA --- the new waiting list in over 90 students! These students and more will learn the relationship to personal health and achievement and future health-related careers.

The Empire State Medical Association encourages all parents, organizers and universities to establish similar programs to interest minority youth early into medicine. For further information please contact Lorraine Grey at (323) 563-5901 whom has successfully implemented this program with Charles Drew University in California.