

Fall 2007

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2008 Overnight Dates:

April 18: Birch Aquarium

May 2: CRES

May 10: Chula Vista Nature Center

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BE WiSE Happenings

Volume 1, Number 2

An Overview of BE WiSE Activities

By Patricia Winter, BE WiSE Program Director

This is the start of the 9th year of the San Diego Science Alliance BE WiSE Program. Almost 800 girls have participated. Many Alumnae stay in touch with us and several have written .

Summer was planning time for the Alumnae workshops for the new school year. Several new workshop hosts—Cymer, Gen-Probe, and Grossmont College—will join us this year, and a few favorite hosts—Sea World, Birch Aquarium, and CRES—will return.

Dates and sites are confirmed for the spring 2008 Overnights for the new 7th and 8th grade girls entering the program. Our graduating seniors are invited to the overnights as mentors for the new girls. We thank our three returning Overnight hosts: CRES, Chula Vista Nature Center, and the Birch Aquarium at Scripps Institution of Oceanography.

Other activities planned for this year include a BE WiSE Botball Robotics team composed of Alumnae in grades 8–10, as well as some of our returning Botball girls in 11th grade. BE WiSE girls will attend the Expanding Your Horizons Conference for BE WiSE Alumnae in grades 8–10. Also scheduled is a College Night for Alumnae in grades 10 and 11, along with their parents. And once again, the girl who wins the 9th grade Alumnae's essay contest will spend a week at Sea World's Camp!

The BE WiSE Program is made possible by our generous funders, many of whom contribute annually to the program. A special thank you to the Biogen Idec Foundation, The Leo S. Guthman Fund, and San Diego National Bank. Equally important are the 20+ volunteer members of the BE WiSE Steering Committee. Without them we would not have a BE WiSE Program.

Thank you to all!



2007 BE WiSE Overnights

FUN FACT:

**BE Wise is starting its
9th year!**



In 2007, BE WiSE 7th and 8th grade girls experienced three fantastic Overnight opportunities at three awesome venues where dedicated scientists provided the girls with the science that surrounds our environment and the conservation needed within that environment.

A highlight of the BE WiSE overnights is the social interaction that occurs among the girls from many schools and districts. They meet new friends, share phone numbers, take pictures, and return home with memories that will be shared for years to come.

The first Overnight was held at the Quail Botanical Gardens in Encinitas, and the girls experienced sessions that included plant dissections, bats and their importance to the environment, and animal tracking systems.

The second Overnight was held at the Conservation and Research for Endangered Species (CRES), next to the Wild Animal Park in Escondido. BE WiSE girls have been coming to CRES for three years now, learning about endangered species and what is being done in this area of science. Sessions included DNA analysis and Condor research.

At the third Overnight, held at the Chula Vista Nature Center, the girls learned about what is being done in the area of endangered species native to the Chula Vista and San Diego area. They explored the preserve surrounding the Nature Center by using animal tracking devices at night to get a real sense of how scientists conduct their experiments.

Each Overnight ended with a movie, snacks, meeting new friends, and remembering the science they learned about our environment. Great times for all!



Botball: A Challenging Experience



Imagine that you are a Hawaiian farmer and it is pineapple harvest time. Just as you are harvesting your pineapples and composting the leaves, the local volcano begins to rumble and you have to relocate houses, set up reservoirs, and clear lava. This was the challenge presented to the third BE WiSE Botball team this spring — and they had to build a robot to meet the challenge!

Botball (ro-BOT BALL) is a nationwide program where teams of middle and high school students design and build their own robot using a kit containing legos, motors, sensors (light, pressure, etc) and accessories, and then program their “bot” using modified C computer code. Teams have six weeks to complete their bots, and the season culminates with a regional head-to-head tournament where 20-some teams compete for top honors. In addition to the building and programming, teams have to create an extensive documentation website and create a presentation for the tournament judges.

The team had BE WiSE Alumnae in grades 8–10 representing eight schools from San Diego County. Expressing a sentiment common to all BE WiSE Botballers, Amber Hudson says: “I enjoyed working with groups on an activity that was not only educational, but fun as well. I got to know so many people and each meeting I left with having enjoyed my day.”



In addition to their coach, Adrienne Marriott from SDCOE, the team had two mentors from the engineering field this season — Diana Anderson from General Atomics Aeronautical Systems and Melanie Dumas, also from General Atomics Aeronautical Systems. Not only did Diana and Melanie offer technical expertise, they were a source of constant encouragement to the team and helped to keep the project on track.

The team worked incredibly hard in the short time frame and learned a lot. Candra Cooper captured the essence of the challenge when she said: “It’s hard to get the robot to do exactly what you want.” We are pleased to say that, through their hard work and dedication, the team finished in the top 12 at the Southern California Regional Tournament.

We are looking forward to a great 4th Botball season this spring and hope the girls from last year will return to the team to join their new teammates. Girls in grades 8–10 are eligible to join the team. If you are interested, contact Patricia Winter at pat.winter@gat.com.



**Introducing the BE WiSE
Steering Committee:**

Patricia Winter
BE Wise Program Chair

Laurie Cale
Canyon Crest High School

Andrea Cook
Consultant

Nina Drammiss,
Lemon Grove School District

Danine Ezell
San Diego USD

Carey Harrington
WITI

Jennifer Jackson
Chula Vista Middle School

Sue Lowery, Ph.D.
University of San Diego

Adrienne Marriott
SDCOE, CREEC

Laura Meldru
Society of Women Engineers

Maggie Reinbold
San Diego Zoological Society

Kathryn Schulz
San Diego Unified School District

Wendy Slijk
Canyon Crest High School

Cindy Spiva-Evans
San Diego Zoo

Hilde Van Den Berg
Miramar College

Cindy Wallace
Wild Animal Park

**Expanding Your Horizons
on the web:**
<http://www.sdsa.org/EYH>

CRES: Partnering for a Better Tomorrow

CRES (Conservation and Research for Endangered Species) is the research arm of the Zoological Society of San Diego and is located adjacent to the San Diego Zoo's Wild Animal Park in Escondido. The CRES mission is to generate, share, and apply scientific knowledge vital to the conservation of animals, plants, and habitats.



In addition to tackling challenges in wildlife conservation, CRES encourages local community involvement in conservation efforts through enthusiastic participation in programs such as BE WiSE, Conservation Corps, Zoo InternQuest, Upward Bound, and Zoo Corps.

On a more local scale, everyone at CRES and the Wild Animal Park has enjoyed partnering with the BE WiSE Program over the past several years. The BE WiSE science overnight is now an annual event at CRES and eager volunteers from the research divisions are never hard to come by. The science overnights at CRES benefit participating girls in a number of ways:

- They showcase a wide variety of innovative tools and techniques that researchers use to conserve biodiversity.
- They allow participating girls to apply their textbook knowledge of biology and chemistry to complex scenarios in wildlife conservation.
- They bring to light the multitude of potential careers involved with conserving endangered species and demonstrate concretely to the girls that work in the natural sciences is satisfying, rewarding, and well within their means as women.
- They are also a whole lot of fun!
Though perhaps less obvious, the BE WiSE science overnights at CRES also greatly benefit the scientists and researchers in a number of ways:
- They encourage our scientists to examine their daily work in a different light, enabling them to translate what they do in creative and fun ways.
- They allow our researchers to directly transmit their passion and enthusiasm for species conservation to the next generation of conservation biologists.
- They also reconnect our scientists with the excitement of learning about conservation science for the first time.



Many of the researchers participate in the science overnights year after year, and the director of CRES, a successful female biologist herself, delivered a wonderful and impacting keynote address at our overnight this past May.

Most recently, we have begun to host BE WiSE Alumnae events at CRES. In March, CRES opened its doors to 15 high school students, graduates of the BE WiSE Program. The girls spent an entire Saturday using DNA from critically endangered California condors in order to determine gender. The girls enjoyed a full-facility tour and learned to use sophisticated laboratory techniques.

Strong partnerships with local programs such as BE WiSE play an integral role in the mission of CRES to connect young people to the science of saving species.

Get SSET 2007

Get SSET was a four-day, three-night science-sport, engineering, and technology program. Each day was filled with learning, hands-on projects, and making new friends. The first day the girls learned about the components of an athlete's shoe, then had to design one with a randomly chosen group of four other girls. Girls were able to research online and interview real athletes to understand what their designs should include.



On the second day the girls were introduced to biology mechanics, had to choose a new partner to work with, and choose a sport to analyze. At four o'clock a trolley took everyone to Pro Kids Golf.

Get SSET on the web:
www.sdsa.org/getsset

FUN FACT:

More than 750 girls have participated in BE WiSE!

BE WiSE Funders:

Anne Prause Blue

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**Todd and Mari Gutschow
Family Fund**

San Diego Women's Foundation

SeaWorld San Diego

The Winter Group

Zoological Society of San Diego

The third day was spent learning about aerodynamics and designing helmets. Later on, the trolley took the group to the Wind Tunnel where they were able to test how much drag their helmets received.

On Friday, the girls spent three hours making PowerPoint presentations to show to their parents about what they did during the previous four days.

Amanda Zhang, one of the participants, summarized the experience: *“ . . . this was a great opportunity for me, and I would highly recommend it to any girl who loves science, sports, dorms, and university food. I have met some amazing girls who share the same passion about science as me, as well as some incredible teachers. . . This experience has encouraged me to continue to be a part of BE WiSE. A great sense of community was present during the entire camp. Get SSET 2007 incorporated friends and school into one amazing program—a perfect combination and a timeless memory.”*

Funding for the Get SSET Program was made possible by contributions from Sony, The BE WiSE Program and San Diego Science Alliance, University of San Diego Institute of College Initiatives (ICI), Old Town Trolley Tours of San Diego, and San Diego Air & Space Technology Center, Low Speed Winter Tunnel.

Reflections on COSMOS

COSMOS, which I participated in at UC San Diego, made my summer absolutely great. This program is a rigorous four-week residence for talented and motivated high school students who are interested in mathematics and science and helps students demonstrate their academic excellence. For one month, students worked side by side with accomplished educators and scholars who are great role models for all of the students. They delivered insightful discussions on numerous topics related to our cluster and took us on weekly field trips that allowed us to explore our topics even deeper. On Tuesdays, we had different speakers talk about diverse fields of science that affect our world today.

We also had cluster field trips each week. One of the most memorable trips was to the Palomar Observatory to see the Hale telescope, the telescope that has taken many of astronomy's most amazing pictures.

Towards the end of COSMOS, everyone had a final project to work on that focused on specific areas of science and mathematics and allowed us to utilize facilities at UCSD that we normally would not have access to. Students learned how to take concise notes using scientific journals as references, analyze data in the form of graphs and models, and use UCSD labs to conduct their experiments.



COSMOS provided a distinctive opportunity to develop integrated skills for success in a college-life residential learning community. Students participated in activities such as arts and crafts, cooking, and soccer with people from other clusters and enjoyed trips to local sites such as the San Diego Zoo and the Padres game on the weekends. We also learned how to do our laundry, take care of our rooms, and respect other students. Since we had more responsibilities than at home, we became more independent.

COSMOS has so much to offer students who are interested in science and mathematics, while giving participants a taste of college life. I definitely would recommend this program to all BE WiSE girls.

Reflections on BE WiSE. . .

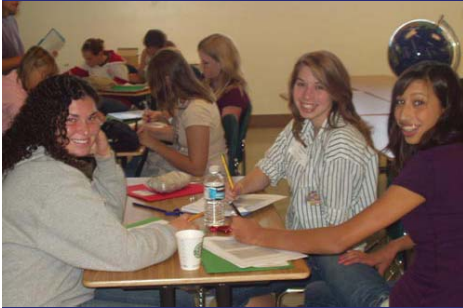
. . . *From a Steering Committee Member*

Being a member of the BE WiSE steering committee for the past seven years has been more rewarding than I could ever have imagined. I had participated in the Pisces program while getting my Masters in Physics and was working at General Atomics when I found out about BE WiSE.

While getting my degrees in Astronomy and Physics, I noticed that there were not many women in these programs, and that science fell by the wayside for girls during the middle school years. I was always asking: “What happens during these teen years to make girls give up on science and why was I different?” I believe the answer involved two things—encouragement and opportunity. I had someone in my life encouraging me and I took advantage of opportunities that came my way. When I learned that the main objective of the BE WiSE program was to encourage 7th and 8th grade girls to stay with science and show them that there are great opportunities in all of the science fields, I knew I had found what I was looking for.

My involvement started with an optics workshop at the Reuben H. Fleet Science Center overnight, has continued with mentoring girls for the Science Fair, and most recently involved organizing a BE WiSE Girls Get Physical one day event at Miramar college. At this event the girls participated in Physics, Astronomy, Geology, Engineering, and Chemistry workshops with women who work and teach in the sciences. It was a thrill to see the enthusiasm from the students.

Over the past seven years I have seen proof that this program works. Many BE WiSE girls have gone on to college as science majors and many high school students have expressed interest in doing the same. The best part is that these girls are from every type of economic and cultural background. Even when they don't pursue a career in science they credit the BE WiSE





program with keeping them focused and making them realize that anything is possible.

I am proud to be a part of this exceptional group. Whether I am acting as a group leader at the overnights or organizing a whole day of activities, one thing remains constant—my involvement with BE WiSE is one of the most rewarding experiences of my career. I can't wait for the next event.

. . . From BE WiSE Alumnae

Hello, I am Carolina and am 14 years old. I joined BE WiSE as a 7th grader and have been participating in various events that the BE WiSE program has offered. When I decided to join this program, I was looking for something that would teach me something new and would be fun at the same time.

The BE WiSE events galvanized my desire to learn more about the different branches of science. They elevated my vocabulary and enlightened me about the latest news on the advances in science. I relish these events because I like collaborating with people and making new friends. BE WiSE makes me feel like an adult already due to the way they impart the knowledge.

These magnificent events have stimulated the learning process I had at school, especially when the topic that we discussed matched the one from school. I even shared the material given with my teachers who gladly enjoyed the information. In a nutshell, I would recommend this program to anyone that enjoys being taught science in an atypical method.

My name is Anna and I will soon be a sophomore at Rancho Buena Vista High in Vista. I hope to earn a degree in the medical field in later years, and that is partly the reason why I am in the BE WiSE program.

I was first aware of BE WiSE during 7th grade when my science teacher presented me with the chance to attend a sleepover at the Wild Animal Park, a BE WiSE activity. Since this was an extraordinary event that I could not let pass by, I went to work writing the essay, getting the recommendations, and filling out the forms that would enable me to join. Before I knew it, my dad was driving me toward the Wild Animal Park and the CRES building. It was an amazing night and morning that I spent in the CRES building. I learned so much about science, from information about cells to the calls of koalas. The following morning I even had a hands-on experience with the Wild Animal Park's very own animals—everything from





reptiles to mammals to various birds—and I had the time of my life. Little did I know, there was more to come.

After my night at the Wild Animal Park, I became a BE WiSE alumnae and had many doors in the scientific field opened to me. I took part in the “Expanding Your Horizons” program at UCSD, as well as several science workshops. I even went to the San Diego County Science Fair with BE WiSE—one of the most memorable and cherishing experiences. BE WiSE aided me with my project by providing a great coach and mentor who guided me through the process of creating the project. In the end, I was rewarded with a first place award and am very thankful for all of the assistance I got from BE WiSE.

Indeed, BE WiSE is a terrific and advantageous program for girls everywhere, and I’d recommend it without a second thought. It has helped me so much and I have been showered with tons of scientific knowledge that I know many girls who aren’t in this program never obtain. I am very grateful and know I can count on this program to aid me in my future high school life.

. . . From College Alumnae

Eight years ago, I noticed a small flyer on the middle school wall inviting girls in the 7th and 8th grades to apply for the BE WiSE program. Sometime later I decided to read the whole flyer through and noticed that the application essay only required students to write a few sentences on the importance of science. I might have never applied for BE WiSE had it not been for the simple topic.

The things I remember from the events relate to the fun I had, not the academic information I learned. I still remember imprinting my shoe into plaster-like material as part of a forensic study to capture a killer. And I still use the rotating star chart to locate Ursa Major taking a black scoop out of the starry sky. By connecting the interesting aspects of science to the scholarly aspects, BE WiSE helped to diminish my dislike of the subject and encouraged me to pursue the field.

With a Bachelor of Science degree in Human Biology, I am currently a student at the Skaggs School of Pharmacy and Pharmaceutical Sciences at UCSD. My academic and professional goals revolve around a subject I used to object to as a child, the same subject made friendly to me by the BE WiSE program. How ironic it feels in retrospection to realize my 7th grade application essay about the significance of science began a cascade of events leading to the prevalence of science in my life today.





As I enter my third year at Redlands, I've begun to see how the end of my undergraduate education will be turning out. I'm starting to ask myself questions about what I'd like to do after I've earned my Bachelors degree. I've always remembered that overnighiter I went to as something that was a major turning point in changing my focus in school toward a math/science field.

I attended high school at El Camino High in Oceanside and graduated in 2005 with AP Physics, AP Calculus, and AP Statistics as my foundation to enter my freshman year of college. I've moved back home every summer and have worked at a law office in La Jolla. One of the attorneys I've met in the past couple of years has been sending me some articles on patents and the demand for people with a background in science to be involved in that process.

When I was in high school and middle school, I always remember being the girl that was strategically placed in my math and science classes to help those around me in case they struggled with a lesson. I've tutored my younger sister in math for as long as I can remember and I've held consistent babysitting jobs and private tutor positions. When I think about how to use the skills I've acquired through these experiences, I can't help but wonder if there's something I can do with the BE WiSE program. I have such fond memories of the experience I had when I attended and I would love to share my passion for mathematics and science with others that are excited to learn.

. . . From Parents

I often think how lucky we are that Bev's 8th grade science teacher handed out the BE WiSE applications. From that first sleepover through all the field trips, BotBall, Get SSET, and now COSMOS, she has gained so much confidence that she can do or be whatever she wants. She also knows it is OK for a girl to be strong in math and science and that doing math and science with other girls is fun.

COSMOS was great. I knew she would like the freedom—no parents and college living—but I was really impressed with how much she liked the academics. Like everyone says, a huge attraction of COSMOS is spending a month in a group where it is acceptable to be excited by science. There were so many teachers (professors, fellows, TAs, graduate assistants, etc.) that the girls always had someone to help them learn.

In many ways, Get SSET was like a mini-COSMOS. I think living on a college campus with TA/RAs who are college students really helps the girls understand what college will be like. It made Bev willing to visit schools and think about where she wants to go. I hope you can keep that program going.



**BE WiSE is a program
of the San Diego
Science Alliance
www.sdsa.org/**

SDSA
San Diego Science Alliance

**Visit the BE WiSE
Website:
www.sdsa.org/BEWISE**

Thank your sponsors for supporting this program. BE WiSE has been a strong positive influence in at least one teen-ager's life. I hope it can continue to expand.

I would like to make a charitable cash donation to SDSA, especially to BE WiSE. My daughter has benefited greatly from programs offered by BE WiSE and Get SSET and I would like to ensure these opportunities can be extended to future students. I could find nothing on your web site regarding contributions from individuals. If there is an opportunity to make a contribution, please tell me to whom I should write the check and where it should be mailed. Congratulations on running a program with so many positive effects.

A week at SeaWorld's Camp

I got back for Sea World yesterday and it was a blast. I had a lot of fun. We learned so much. On The first day we arrived, we got in the tank with the Batrays.... The huge StingRays, and we feed them. We went to a few shows and thats it. On the second day we, saw the Shamu Show Believe... It was cool. We sat in the "soak zone".... which means that you will be soaked be the killer whale. On the thrid day it was avian day..... which means we played with the flamingos.... we feed the flamingos... we prepared food for the penguens... and we took pictures with the penguens.... and we played with them..... For the most part we prepared food for all of the birds in the park. On the fourth day it was training day, which meant we prepared food for all of the killer whales.... On The Fifth day we swam with the dolphins... we also saw a lot of shows. On The sixth day we, saw all the show, went on all of the rides, went to all of the aquariums and we did everything again. And on the last day we delievered bagels to all the places we went to during the week for appreciation.... I loved it. I just want to say thank you for everything that you have done in my life to make everything come true for me.... now since i am well informed all about marine biology.... I am looking for my field in Marine Biology..... Or becoming a Killer Whale Trainer...Thank You for it all..... Ed. Note: this was written by the 9th grade BE WiSE Alumna whose winning essay sent her to one week camp at SeaWorld in August.

*Editor's Note: Contributions can be sent to: Patricia Winter,
BE WiSE Project Director, 6449 Caminito Sinnecock,
San Diego 92037. Checks should be made payable to
San Diego Science Alliance
with a memo stating that it is for the BE WiSE Program.*