

## American Chemical Society

Form: Part IV Self Nomination for Chemluminary Awards **Optional**

Organization: Cincinnati

Year: 2006

**Our Section would like to be nominated for the Outstanding Kids & Chemistry Program Award**  
**The Kids & Chemistry (K&C) program is designed for ACS members who are interested in volunteering in elementary school classrooms to help ensure that quality hands-on science education occurs. This award is presented by the Society Committee on Education and will be awarded to the local section with the highest quality of K&C outreach accomplishments. Programs will be judged based on the number and quality of events (hands-on, interactive involvement is desired), number of volunteers, number of students/schools involved, involvement of local business/industry, publicity, and the effectiveness of the events and programs**

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Since, 2003 the Retired Chemists Committee (RCC) have presented chemistry demonstrations to many local 5<sup>th</sup> and 6<sup>th</sup> grade classes. In 2006, 8 Ph.D. chemists and chemical engineers presented hands on experiments in gaseous and solid CO<sub>2</sub>; liquid nitrogen; an orange juice chemical clock reaction; red cabbage extract pH changes and an invisible ink demonstration. These experiments were shown to 30 classes of approximately 650 students in the Winton Woods school district, which is over 70% African-American. Some 150 hand made thank you notes were received from the students and the 5 school principals recognized the RCC as the outstanding educational outreach program in 2006.

Demonstrations were also given to six 6<sup>th</sup> grade classes in the Finneytown school district and to 150 girl scouts from Delhi's Rapid run elementary school. These demonstrations show important physical and chemical changes consistent with their learnings for the science achievements tests.

We favor demonstrations to individual classes to maximize the hands on role of the students and the learnings. We spent about 6 weeks planning and conducting the demonstrations in 2006.

The RCC outreach activity was featured in a local newspaper article (Hilltop Express) and in an article on senior chemists in the July 24, 2006 article in C&E News. Linda Wang, the writer of C&E news article relayed to Ralph Damico that the RCC was the only educational outreach activity she discovered in her research for the C&E News article.

### 2-3 Sentence

#### Abstract for Program Booklet

In 2006 the Retired Chemists Committee (RCC) gave hands on chemistry demonstrations to over 900 5<sup>th</sup> and 6<sup>th</sup> grade students in about 42 individual classes. The RCC was recognized as the outstanding educational outreach program at Winton Woods elementary schools. An article on senior chemists in the July 24, 2006 issue of C&E News included the RCC activities.

## ChemLuminary Awards for National Chemistry Week

**The American Chemical Society's ChemLuminary Awards for National Chemistry Week, formally the Phoenix Awards, were established to recognize local sections that have demonstrated exemplary performance in the development and implementation of outstanding activities in support of National Chemistry Week during the previous calendar year.**

**A local section may nominate for up to three ChemLuminary Awards for National Chemistry Week. However, only one per award is permitted. Nominations are limited to 1,000 words and should (1) describe the event or activity and (2) explain why it should be considered for that particular award. Please do not send supporting materials. In general, extra consideration will be given to events that are innovative, use the yearly theme, reach a wide audience, and have good publicity. The abstract must reflect the criteria for the award category and must be unique for each entry.**

Our section would like to be nominated for the **Outstanding Community Involvement in NCW Recognizes a local section that generates the greatest amount of community participation. Judging Criteria: Audience Participation, Variety of Programming, Creativity and Innovation, Volunteer Involvement/Collaboration, Publicity, and Geographical Reach**

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Outstanding Community Involvement in NCW Our National Chemistry Week (NCW) program in 2006 was expanded to a total of 50 different NCW events in locations all over Cincinnati, Northern Kentucky, Eastern Indiana, and Greater Cincinnati!! We were at many public libraries, at the Cincinnati Museum Center (CMC), at Home Depot, and in the basement of a church! In all, we directly reached over 2000 people. In addition, we reached thousands more through our Newspaper in Education (NIE) program with the Cincinnati Enquirer/Post with four days of quarterpage ads on this year's theme. The newspaper was distributed free of charge to schools in the Tri-State and featured the Your Home \_ It's All Built on Chemistry\_ theme in their website (<http://www.cincinnati.com/nie/chemistry/>). All the NCW events were publicized through the Cincinnati ACS local section (<http://www.che.uc.edu/acs/cinacs.html>), the Public Library of Cincinnati and Hamilton County and the CMC web sites, the Cincinnati Enquirer's event calendar listing and through flyers distributed via e-mails to libraries and schools. Our ability to expand our NCW program was possible through the fantastic effort of a very passionate and talented team of volunteers, and also as a result of the strong support we received from our partners:

- o Local companies such as Procter & Gamble, Cognis Corporation, and Givaudan Flavors provided generous monetary support while Wright Brothers, Lyondell, Home Depot, and Advanced Testing Laboratories Inc. supported us with in kind donations.

- o Public organizations such as the Cincinnati Museum Center (CMC), the Public Libraries of Cincinnati and Hamilton County, and many other public libraries of neighboring counties.

- o Volunteers who are retirees and industrial chemists with diverse technical background, mastery and cultural backgrounds. They were or are employed by companies such as Waytek Corp., Procter and Gamble, Wright Paterson Air Force, Lyondell, and Lanxess Corp., Advanced Testing Laboratories Inc., and Givaudan Flavors.

- o Faculty, teachers and students from educational institutions such as Northern Kentucky University (NKU), University of Cincinnati, Miami University, Wilmington College, and local High Schools such as Cincinnati Hills Christian Academy, Seven Hills, Oak Hills, and Summit Country Day are also active members of our NCW team.

This year's theme gave us a unique opportunity to present a wide range of chemical principles and relate their importance and benefit to our society in a very tangible way. In the paragraphs below I share highlights and stories of the many events our volunteers led throughout the Tri-State:

" Thermal insulation was demonstrated at Corryville Library by monitoring the temperature of cold water samples wrapped with various different insulating materials. At Pleasant Ridge and North Central libraries it was done by observing the melting rate of wrapped ice cubes. A thermal camera was used

at College Hill, Avondale and Groesbeck Libraries to see thermal insulation at work. The kids certainly understood the benefits of having a properly insulated house during the cold days of fall and winter!

" Children at Deer Park, Norwood, and Home Depot learned about paint, made different color paints which they used to paint houses on paper or Styrofoam cups. How smoke detectors work was explained at Walnut Hills and Miami Township Libraries, while fire extinguishers were demonstrated at Mason Library.

" Polymers, polymers, polymers in all kinds of products. At Home Depot and Living Waters Church home building objects made of PVC, PET, Nylon, Cellulose and Polyurethane were displayed each accompanied by their chemical structure. Polymers were also discussed with kids and made using Mountain in Minutes. The latter was a great hit, as the polymer grew so did their eyes in amazement as well!! The children also had also the opportunity to make their own slime or playdough and take it home.

" October 2006 marked the 60th year since the introduction of Tide® by P&G. In connection to the designation of Ivorydale Technical Center as a National Chemical Landmark during NCW, a Bubble House was demonstrated using a kid wading pool, hula hoop, concrete block and bubble solution outside of the Children's Museum at the Cincinnati Museum Center (picture attached). Children had a great time and proclaimed that the bubble house to be AWESOME.

" Chemiluminescence was discussed and demonstrated at a number of venues. It was also explained how light is composed of red, yellow, green and blue light and each one has different energy. Phosphorescence was shown using different color LEDs, glow sticks and two kinds of glow in the dark vinyl tape. Fluorescence was also shown with a fluorescein solution and LEDs.

Participant took home a sample of a glow in the dark tape made with strontium oxide aluminate doped with europium to test phosphorescence life at home.

" Copper, iron, aluminum. Home building objects made with METALS were shown at Home Depot and Living Waters Church. Their electrical conductivity was demonstrated with a conductivity tester and compared versus insulators, e.g. plastic coating of copper wires, at Pleasant Ridge and North Central Libraries. " In the rotunda at the CMC, volunteers demonstrated the thermal insulating properties of different materials such as wood, polymers, aluminum, etc. and explained why certain materials are preferred for the construction of houses. Audiences also learned about exothermic and endothermic reactions and how they are used to create products we use, such as ThermaCare® heat wraps. A simple, but very illustrative hands on activity was performed by the public: driveway salt was mixed with water in one zip lock bag (exothermic) while baking soda was mixed with water in a second zip lock bag (endothermic). The use of the thermal camera really made this simple experiment come alive and gave the participants another way to understand the concepts. At the Covington Library, Home Depot and Living Waters Church the audience was amazed when an egg was literally cooked using the Eggs-O-Thermic reaction of calcium oxide with water.

Children and adults alike had a lot of fun learning about chemistry. One girl, who attended a NCW event at the Newport Library, had her grandmother take her to the Independence branch so she could see the demonstrations again!

## 2-3 Sentence

### Abstract for

### Program Booklet

A broad spectrum of people of our communities in the OH/KY/IN Tri-State actively participated to make NCW 2006 a resounding success: Professors, teachers, students, industrial chemists, retirees, librarians and non-chemists of all ages, ethnic/racial background, and expertise worked together to reach the public at large.

Our section would like to be nominated for the **Outstanding On-going NCW Event** Recognizes a local section for an outstanding event that has been conducted for at least three years (not awarded to the same section more than once in a 5 year period). Judging Criteria: Program Quality, Program Longevity, Volunteer Involvement/Collaboration, Audience Participation, Publicity, and Program Growth

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Outstanding On-Going NCW Event \_ NCW at CMC on October 27th and 28th 2006

For the 7th consecutive year, the Cincinnati Section has partnered with one of the premier museums in the Tri-State, the Cincinnati Museum Center (CMC), to bring the excitement of chemistry to the public during NCW free of charge (picture of CMC activity attached). The CMC houses the Cincinnati History Museum, the Museum of Natural History and Science, the Children's Museum and the Omnimax Theater attracting visitors from all over the country.

Every year we develop a 2-day chemistry demonstration program using the yearly theme that includes hands-on activities. Three to four different stations are set up throughout the CMC. The event is publicized through the Cincinnati Museum Center, the Public Library of Cincinnati and Hamilton County, the Cincinnati Enquirer's event calendar listing and the ACS Cincinnati Section web sites (at <http://www.che.uc.edu/acs/cinacs.html>), and through flyers distributed via e-mails to libraries and the many schools in the Tri-State.

This year, we had a blast celebrating \_Your Home \_ It's All Built on Chemistry\_ at the Cincinnati Museum Center during NCW 2006. About 700 people enjoyed our demonstrations during the two days, we had many fun things for them learn about and do. Millie Mole (Dr. Susan Hershberger, Miami University) made special appearances and greeted field trippers and visitors at the CMC entrance. In the rotunda, using a thermal imaging camera volunteers demonstrated the thermal insulating properties of different materials such as wood, polymers, aluminum, etc. and explained why certain materials are preferred for the construction of houses. Audiences also learned about exothermic and endothermic reactions and how they are used to create products we use, such as ThermaCare® heat wraps. A very exothermic reaction was dramatically demonstrated when hydrogen peroxide was decomposed with potassium iodide using a Jack-O-Lantern and a little bit of Dawn. Also, a simple, but very illustrative hands on activity was performed by the public: driveway salt was mixed with water in one zip lock bag (exothermic) while baking soda was mixed with water in a second zip lock bag (endothermic).

The use of the thermal camera really made this simple experiment come alive and gave the participants another way to understand the concepts other than by touching the bags.

October 2006 marked the 60th year since the introduction of Tide by P&G. In connection to the designation of Ivorydale Technical Center as a National Chemical Landmark during NCW, a \_Bubble House\_ was demonstrated outside of the Children's Museum using a kid wading pool, hula hoop, concrete block and surfactant solution. Many children had a great time being encased in a the \_bubble house\_ when the hula hoop was lifted. The participants proclaimed it to be \_AWESOME\_.

In addition, chemiluminescence was discussed and demonstrated. It was explained how light is composed of red, yellow, green and blue light and each one has different energy. Phosphorescence was shown using different color LEDs, glow sticks and two kinds of glow-in-the-dark vinyl tape. Fluorescence was also shown with a fluorescein solution and LEDs. Some children took home a sample of a glow-in-the-dark tape made with strontium oxide aluminate doped with europium to test phosphorescence \_life\_ at home.

Standard experiments with dry ice (floating bubbles, blowing up gloves, and red cabbage juice with baking soda pH experiment) and liquid nitrogen (shrinking balloons and turning bananas into hammers) were all great hits as well.

The best part of the event was hearing from one child \_IT'S THE BEST WEEK\_ (National Chemistry Week) after enjoying the demonstrations and receiving

a \_Hooray for Chemistry\_ goodie bag with a \_Celebrating Chemistry\_ ACS newspaper, a Periodic Table, an \_Explore and Experiment\_ pencil, Avogadro's temporary tattoos, and NCW balloons.

Located at 1300 Western Avenue, Cincinnati, the CMC is visited by thousands of local residents and visitors from all over the country. It is certainly an ideal place for reaching the public at large, children and adults, and showcase the importance and usefulness of chemistry. No doubt about it, the smiles and wonder in the faces of the children who were at CMC were the highlight of NCW 2006 for us.

This event would have not been possible by the the commitment of a very diverse team of volunteers:

Jamie Heimkreiter (Advanced Testing Laboratories), Ed VonBargen (P&G), Jamie Laughlin and 8 students (Cincinnati Hills Christian Academy), Susan Hershberger (Miami University), Brandon and Terri Dunphy (P&G), Amy Weiskittel, Sue Setty, Sue Matz and Betty Humble (Lyondell Chemical Company), Charlie Pollard and Mike Story (Boy Scouts Troop 956), Dimitra Simmons and Sean Conklin (Wilmington College), and Gloria Story (P&G) who led the overall coordination of the event in close, and productive, collaboration with personnel of the Cincinnati Museum Center.

## 2-3 Sentence

### Abstract for

### Program Booklet

In its 7th consecutive year, the 2-day NCW event at the Cincinnati Museum Center provided visitors a forum to learn how CHEMISTRY is essential to the development of ubiquitous items found in every home and how it makes life much easier and comfortable for each one of us in a fun and engaging way.

## Local Section Project Seed Committee Award

Our section would like to be nominated for the **Outstanding Project SEED Program**

**This award is to recognize the local section organizing an outstanding Project SEED program. The award recipient must demonstrate an ongoing commitment to the SEED program, including outreach to high schools, local business/industry, and academic institutions. Winning local sections must demonstrate an outstanding organization and potential for growth. The award is also based on effective mentor and student interaction, local business/industry participation, and financial support**

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### PROJECT SEED AT CINCINNATI.

2006 was the fourth year that Project Seed program placed economically disadvantaged high school students in different Chemistry laboratories in Cincinnati. The ACS Washington office, the Cincinnati Section of the ACS and an anonymous donor generously sponsored the Project SEED 2006 program. In 2006, Four students spent eight weeks at the University of Cincinnati and Xavier University working in a laboratory setting. The names of the students and their projects are:

" Jasmine McSears, Withrow University High School, worked with Rick Mullins at Xavier University on the development of synthetic routes towards the

total synthesis of kalkitoxin, a fungal metabolite isolated from *Lyngbya majuscula*.

" Kyle Cavanaugh, Aiken High School, worked in the laboratory of Professor Anna Gudmundsdóttir synthesizing vinyl alkyl azides.

" Curtis Carr, Aiken High School, worked in the laboratory of Professor James Mack on the development of solvent free green technologies.

" Stephany Jones, Aiken High School, worked in the laboratory of Professor Suri Iyer on the synthesis of multivalent glycoconjugates for pathogen detection.

All students had a productive summer and enjoyed the active learning environment. Curtis and Kyle have decided to go to college. They will be joining UC in the Fall. Jasmine and Stephany are seniors and would like to return next year. Jasmine wants to apply Chemistry to art, perhaps combining the two majors when she attends college. Stephany is very interested in pursuing a M.D/ Ph.D program. Some quotes from the students.

"I feel privileged to have been a part of this program. Instead of learning about chemistry in a lecture setting, I got to see the actual research process occurring in action. I also got to see that the research process has as many failures as it does successes, but after the failures, the successes are that much more exciting. "

"I would recommend other students to participate in this experience."

"This is cool stuff. This is more exciting and important than working at Dominos."

"Thank you for selecting me and giving me this opportunity. I showed my Mom what I've been doing. She is very proud of me! "

With the help of Dr. Bruce Ault, we interfaced the SEED program with the UC Department of Chemistry NSF-sponsored Research Experiences for Undergraduates (REU) Program, which provided for 11 undergraduate students from around the country to engage in Chemistry research at UC. At biweekly meetings, the SEED students were exposed to a variety of professional development topics, including employment opportunities, oral presentation skills, interviewing skills and reading & writing scientific papers. SEED students loved the seminars.

The Project SEED program at Cincinnati is unique in many respects because the students gain invaluable experience working in laboratories and interacting with graduate students and faculty on a daily basis.

There are plans to expand this program to more economically disadvantaged students this year and help them in their budding careers as chemists.

## 2-3 Sentence

### Abstract for

### Program Booklet

ACS Project SEED at Cincinnati offers a unique opportunity for economically disadvantaged high school students to spend the summer conducting hands-on chemical research with scientists in a laboratory setting. Students interact with NSF-sponsored Research Experiences for Undergraduates (REU) Program students and are exposed to a variety of professional developmental topics such as employment opportunities, oral presentation skills, interviewing skills, etc. This program is supported by high school teachers, professors at UC and Xavier and the local and National ACS.