




8-1983

High School Faculty Institute for Chemistry Teachers

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Recommended Citation

George, B. (1983). High school faculty institute for chemistry teachers. *Journal of Chemical Education (Opportunities in Continuing Education)*, 60(8), 664-665. doi: 10.1021/ed060p664

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opportunities in continuing education

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High School Faculty Institute for Chemistry Teachers

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The High School Faculty Institute for Chemistry Teachers was established at Sacred Heart University in April 1980 and since then it has become a vital part of the extra-curricular program in the chemistry department. The institutes are conducted as a community service to supplement the continuing education of area high school chemistry teachers by exposing them to current topics and/or advances in chemistry. The long term goal is to assist teachers in inspiring students to take up chemistry as a career or to continue studies in chemistry.

High school chemistry teachers are in a critical position for initiating a student's interest in chemistry. A student's first exposure to chemistry could be such an enlightening experience that the student may decide to continue his/her studies in chemistry. On the contrary, the experience of the student in the classroom or laboratory might be totally uninspiring, and a potential chemist could be turned away to another field. We are making every effort to assure that the institutes will aid teachers in their continuing education process and assist them in becoming more effective in their teaching.

The dates and topics covered in the high school institute since its inception are given below.

1980

- "Ultraviolet-Visible Spectrophotometry," Dr. Robert J. Snyder, Sacred Heart University;
"Atomic Absorption Spectroscopy," Dr. Anthony V. Pinciario, Sacred Heart University;
"Infrared-Spectrophotometry," Dr. Babu George, Sacred Heart University.

1981

- "Electrophoresis of Biological Substances," Dr. David Reibstein, Sacred Heart University;
"Safety in the Academic Laboratory," Two presentations: (a) "Chemical Storage & Hazards," Dr. Dolores Gracian, Bronx Community College, Bronx, NY; (b) "Training Students on How to Use Safety Equipment," Dr. Guy D'Angelo, State University at Stonybrook, NY.

1982

- "Fun With Chemistry," Chemistry Faculty at Sacred Heart University.

This feature serves as the source of educational opportunities for chemistry teachers. It includes up-to-date information on forthcoming workshops, seminars, and short courses. Also readers are provided the opportunity to relate their personal experiences with these education programs. In addition, readers are invited to share their dreams and suggested designs for possible workshops. In this way it is hoped that potential sponsors will have a better idea of the needs and desires of their potential participants.

1983

- "Computer-Aided Chemistry," Dr. Jerry A. Bell, Simmons College, Boston, MA; Mr. Bruce Koloseike, Hanover High School, Hanover, NH; Mr. David Olney, Lexington High School, Lexington, MA; Mr. Ronald Perkins, Greenwich High School, Greenwich, CT; and Ms. Carole Shmurak, Miss Porter's School, Farmington, CT.

With the exception of the Safety Institute, all the others involved hands-on experiments.

All the institutes were well received, but the "Fun With Chemistry" and the "Computer-Aided Chemistry" institutes were undoubtedly the most successful. The details of the "Fun With Chemistry" institute exemplify our procedure. Letters were mailed to the heads of chemistry departments of sixty high schools in our area. Our expectations were to select the first twenty applicants for the institute. However, within one week, forty-six applications were received. Because of this overwhelming response, we decided to accept all the applicants. Twenty experiments were set up in three laboratories. Many experiments were duplicated, but some were set up only in one place. The participants were given the list of experiments and their locations. Safety goggles, aprons, and procedures were provided for the teachers. All the reagent solutions, equipment, and glassware were clearly marked with appropriate information for each experiment. The teachers generally worked in pairs. Some of the experiments were, of course, already familiar to some of the teachers. The list of experiments performed is given below. (The first 16 were taken from a laboratory manual written by Andy S. W. Sae of Eastern New Mexico University¹, numbers 17, 18, and 19 were taken from Tested Demonstrations in Chemistry,² and the last one was taken from a laboratory manual written by faculty members of the Chemistry Department of Sacred Heart University.³)

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|------------------------|----------------------------------|
| 1) A Plastic | 11) Funny Egg |
| 2) Bubble Bath | 12) Hot Message |
| 3) Canary Yellow | 13) In Suspension |
| 4) Chemical Color Show | 14) Jug of Color |
| 5) Chemical Volcano | 15) Nylon 66 |
| 6) Colors of Nature | 16) Sugar Volcano |
| 7) Cranberry Juice | 17) A Versatile Clock Reaction |
| 8) Digesting Starch | 18) Chemiluminescence-Variations |
| 9) Disappearing Blue | 19) Colored Clock Reactions |
| 10) Educated Mothball | 20) Radioactivity |

¹ Sae, A. S. W., "Chemistry Is Fun," Private Printing, Department of Physical Science, Eastern New Mexico University, Portales, NM 88130, 1979.

² Alyea, H. N., Dutton, F. B., "Tested Demonstrations in Chemistry," 6th Ed., Division of Chemical Education of the American Chemical Society, Easton, PA, 1965, pp. 147, 149, 186.

³ George, B., Monaghan, C., Rowe, G. Rev., "Principles of Chemistry—Laboratory Manual," Private Printing, Department of Chemistry, Sacred Heart University, Bridgeport, CT 06606, 1982.

The enthusiasm and enjoyment showed by teachers were gratifying. They indicated that these are the kinds of hands-on institutes they like to participate in. The enthusiasm of the teachers prompted the announcement of another institute called "Fun With Chemistry-Part II," to be conducted on April 12, 1983. This time we asked the teachers to send in their favorite "fun but educational" experiments. The experiments did not have to be original ones. However, their proper source had to be acknowledged. The participating teachers selected the first three best experiments. Cash awards of \$100, \$75, and \$50 were given for the first, second, and third prize winners.

The "Computer-Aided Chemistry" institute started with a talk on the philosophy of the use of computers by Dr. Jerry A. Bell. He and the other four instructors were able to arouse interest in the use of microcomputers among the forty participants. All of them actually operated the Apple II Computers available in the workshop using programs provided by Dr. Bell and his associates.

The institutes are conducted in afternoons of normal working days. This way the teachers do not have to be absent from classes or find substitutes to replace them since almost all the schools hold no classes after 2:00 p.m. The admission to the faculty institutes are generally on a first come first served basis and the teachers participate free of charge. It is our wish to continue this policy. So far, we have not received any grants or donations from any source other than Sacred Heart University. We have learned how to organize the events modestly without printing fancy posters and flyers. We have

also found that these institutes are forums for high school teachers to meet old friends, make new friendships, and exchange ideas. When the institutes are over, we usually have a reception. To add more fun to the occasion, usually we have door prizes such as portable pH meters, first aid kits, etc., which are drawn by lottery. Any high school chemistry or science teacher is eligible to attend the faculty institute. Normally, they are from Fairfield County and the surrounding areas of Bridgeport, Connecticut. It is our plan to offer a minimum of two institutes per year and a maximum of four spread between two semesters.

The high school faculty institutes also help the chemistry faculty at Sacred Heart University in their continuing education process. Since the institutes are cooperative efforts of the chemistry faculty, student assistants, and staff, a sense of unity and accomplishment is felt by all the persons involved after the successful conclusion of each institute.

Acknowledgment

The author wishes to acknowledge the help of Dr. Robert J. Snyder, Miss Marie Sabo, Dr. Robert W. Cuddihee, Rev. George Rowe, and Dr. V. P. Wystrach, who are members of the chemistry department, for their invaluable assistance. Financial assistance from the Convocation Committee of Sacred Heart University is also gratefully acknowledged. Thanks are also due to Dr. Anthony V. Pinciario, Academic Vice President and Provost, and Dr. Raoul A. DeVilliers, Dean of the Division of Mathematics and Science, for staunchly supporting the program.