

1974

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### Recommended Citation

Pizzini, Edward L. and Philp, Charles (1974) "Collegiate Programs for Secondary Students: Meeting the Needs of the Talented," *Iowa Science Teachers Journal*: Vol. 11 : No. 2 , Article 14.

Available at: <https://scholarworks.uni.edu/istj/vol11/iss2/14>

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# COLLEGIATE PROGRAMS FOR SECONDARY STUDENTS: MEETING THE NEEDS OF THE TALENTED

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## *Introduction*

The concept "meeting the needs of the individual student" has been paid lip service for years within educational circles. Whether this has in fact been carried out to any appreciable extent is still open to question. Since the inception of the Secondary Science Training Programs (SSTP) by the National Science Foundation in 1959, hundreds of colleges and universities have sponsored special science programs for high-ability students. However, the Department of Health, Education, and Welfare stated in November, 1973, that fewer than four percent of this country's talented secondary students were being exposed to programs commensurate with their needs (Williams, 1973). An even more awakening statement in the report was that 57 percent of school administrators surveyed were unaware of having any gifted students in their schools!

The question which remains to be asked is, "Who is responsible for identifying and informing students of opportunities available to them beyond the high school program?" There is ample research to indicate that the behavior of teachers is the ultimate variable affecting the outcomes of students (Witty, 1947; Michael, 1951; Yager, 1966). It is the teacher—not the textbook, curriculum, facilities, or other variables—who must meet the needs of high-ability students. Therefore, it is the teacher who must assume the responsibilities for informing students of the various programs not available at the local level which can meet these needs.

## *Special Programs*

The variety of special courses offered, providing university credit, in the Science Education Center at The University of Iowa is an attempt to meet the needs of high-ability, science-oriented students. Pizzini (1970, 1972) has reported on the nature of past SSTP pro-

grams and the general opportunities which exist for students at The University of Iowa. During the summer of 1973, 242 secondary students participated in seven of these special enrichment courses. This was triple the number participating during the summer of 1971, the first year the SSTP became self-supporting at The University of Iowa. Such a growth in popularity can largely be attributed to a realization on the part of secondary students that these enrichment opportunities provide knowledge and experiences not entirely available at the local level.

Because of this growth and an expressed need on the part of past participants for an expanded selection of courses, ten programs will be offered during the summer of 1974. These are in addition to the Florida Ecology Program, which was made available for the first time during the December holiday recess of last year, which provided two semester hours of credit to eligible students. The success of the Florida Program has encouraged its continuation as a portion of The University of Iowa SSTP during December-January semester recess for 1974-75.

Of interest to secondary educators would be the following characteristics of a sample of past SSTP participants. Eighty-nine percent of the participants were in the upper quarter of their classes. Fifty-eight percent were classified as juniors and 38 percent were seniors. Fifty-one percent attended high schools with over 1,000 students, while 22 percent were from schools with fewer than 500 students. Twenty percent of the participants worked at part-time jobs (6-14 hours per week), while 18 percent worked 15-24 hours per week and 11 percent worked more than 25 hours per week. Seventy-eight percent of the participants attended church at least twice a month. Thirty-five percent of the students came from families with an income of less than \$10,000 per year, while 65 percent came from families with incomes above \$10,000. Twenty-nine percent of the students came from towns with a population of less than 5,000, and 16 percent came from metropolitan areas. Sixty percent of the students had taken three or fewer science courses in high school. Eighty-two percent judged their high school education as good to excellent (Pizzini, 1973).

Based upon the above data, it is quite evident that the students participating in SSTP at The University of Iowa come from a diversity of backgrounds. In fact, teachers instructing one or more sciences probably realize that the above characteristics are not very different from those of several of the students in most classes in Iowa schools. Would these students benefit from special programs? Could *ISTJ* readers in-

form them of the various types of programs and opportunities that do exist?

The three foci of the summer SSTP programs at The University of Iowa are research, field studies, and course-centered programs. The Research Participation Program is designed to demonstrate the nature of scientific research by providing first-hand experience in research laboratories. Each student works under the supervision of a research professor and becomes involved with a research project. The student spends approximately 40 hours per week for six weeks in the laboratory. The student is expected to carry the research project to its natural conclusion in the form of a paper that will be published. Special seminars and a technical writing course provide an opportunity to interact with other students, various staff members, and visiting scientists.

The field studies experiences consist of three environmental programs and the Mexico Program. The Yellowstone Program is an outdoor experience utilizing Yellowstone National Park and adjacent areas as a "living laboratory." Field investigations are conducted in biology, ecology, geology, and related environmental problems.

The Rocky Mountain Program is designed to have students carry out a variety of field investigations including air-water-soil analyses, noise and thermal pollution around Pueblo, Colorado, reforestation, land use, and floral and faunal studies. A special emphasis is placed on studying ecological relationships.

The third environmental program, the Canadian Wilderness Program, compares urban and wilderness environments. Students will have the opportunity to live in both extremes and study the effects of man on each. The other field program, the Mexico Program, is interdisciplinary in its approach. Participants will spend four weeks in Mexico studying the history, art, culture, music, architecture, and physiography of Mexico. Perhaps the best way to describe this course is to view it as a four-week seminar in Mexican ethnology, designed to promote knowledge, mutual friendship, and understanding.

The course-centered programs are designed to promote an in-depth and enriching experience in the various disciplines of science, social science, and mathematics. The programs are not survey courses. Instead, the programs provide fascinating glimpses of these fields at the threshold of research and discovery.

Additional information, applications, and arrangements for a school visitation can be made by writing to: SSTP, Science Education Center, The University of Iowa, Iowa City, Iowa 52242.

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## EASTERN IOWA SCIENCE FAIR— CEDAR RAPIDS

We of the Eastern Iowa Science Fair Board invite you to participate in the 1974 Science Fair. The dates of this year's fair are April 6 and 7. The location/address of this year's fair is: George Washington High School Symposium, 2205 Forest Drive Southeast, Cedar Rapids, Iowa.

All entries must be registered on entry blanks postmarked not later than March 17, 1974. A brief description of the exhibit or paper is to accompany the entry blank. If a student doesn't know the outcome of his or her experiment by March 17, this is not necessarily a problem, because the exhibits are judged according to specific judging criteria. "Perfect" results are not mandatory. It would be well to remember this when you prepare your project for exhibition.

The rules and regulations are, for the most part, the same as last year's. Regulations should be reviewed, particularly Rule 2 indicating that group entries are not permitted, Rule 6 which sets the dimension limits of an exhibit, and the regulations concerning live animals.

If there are any technical problems, or problems with equipment procurement, please feel free to contact Mr. Henry J. Dickinson, Eastern Iowa Science Fair, 806 Niles, Maquoketa, Iowa 52060. Any general questions concerning the fair should be directed to Mr. James Gibbs, % Eastern Iowa Science Fair, Box 1302, Cedar Rapids, Iowa 52406.