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Biology Summer School Enrichment Program

What can be done in a rural area to provide students with additional wanted or needed educational training? Butler County has offered a summer enrichment program in the areas of Art, English, Mathematics. This program has been very successful.

Early in the fall of 1964, under the direction of the county, Guidance Coordinator an In-Service Institute was established by the science teachers of the area. The purpose of this institute was to offer additional training to teachers and to provide students of science with a series of 8 seminars in science. These teachers also established the plans for a field biology course to be offered the following summer. This article will deal with this program, which, to the knowledge of the authors, has not before been done strictly rural area on the high school level.

The funds necessary for this program were provided as follows: Two-thirds by the Butler County Board of Education, one-third by the Local School Boards of the schools in the county, a $5.00 registration fee by

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Instructor Gene Olson checking over the plant display of John Barkmeier

Hampton
(1) Big Marsh Game Refuge:
This tour was presented by Conservation Officer Gregory and Unit Game Manager Dazelle. The purposes and functions of refuges were relationship to water conservation, migratory waterfowl preservation and recreation.

(2) Backbone State Park:
Park Official Penfield conducted the group through the park and trout hatchery. Mr. Penfield stressed the geology and flora of the unglaciated area. Students used keys for plant identification. Trout hatchery and not rearing was stressed at the hatchery.

(3) Decorah Small Mouth Bass Hatchery: Fishery Manager Lynch pointed out the differences between trout and bass reproductive behaviors. A tour was taken of the Luther College Science Hall, planetarium and greenhouse.

(4) Butler Center Prairie: Dr. C.
Guy Olson, Summer School Director, holds a student mousetrap at the final evening display of student work. Art and English were also represented.

W. Lantz, Plant Physiologist, of the State College of Iowa described the flora and presented a lecture on the grasslands of the world.

(5) Butler County: Mr. Hoege, Soil Conservationist and Mr. Buckner, Soil Scientist took the class to various locations in the county, stressing soil types, soil formation and conservation.

(6) Pilot Knob State Park: Park Officials Huffle pointed out the biota of this unique area. Students used their keys and made some collections. Mr. Christensen, Rockwell City, Biology instructor took students to the sphagnum bog and explained the work of past glaciers and why such an area exists.

(7) Old Round Grove: Mr. Davids, rural editor of the Farm Journal, accompanied the group on a bird walk. About 35 species were identified. The work of the Ornithology Society was discussed as well as bird migration, photoperiodicity and bird territories.

(8) Ecology of a Pond: Dr. Hertel of Wartburg College presented a lecture on the "Web of Life" using the farm pond as an example. Interrelationships were stressed.

In addition to the major or field trips, the instructor conducted trips to nearby areas. The use of dichotomus keys was stressed in the identification of flora, insects, Protista and mammals. Students were taught how to collect and correctly preserve plant and animal materials.

A new colored film, courtesy of Encyclopedia Brittanica Film, was shown each week. These stressed basic biology and areas that were very closely related to the work at hand. A list of these films is as follows:

Seining of fish; Instructor Gene Olson in right foreground.
Jow's:
1. Single Celled Animals: Protozoa
2. Angiosperms
3. Photosynthesis
4. The Grasslands
5. Temperature Dedicuous Forest
6. Evolution of Vascular Plants: The Ferns

Laboratory work on rainy days and when the students were not in the field consisted of the following activities:

1. Study of about 35 species of protozoans.
2. The fine structure of the cell as learned by recent electron microscopy.
3. Discussion on DNA-RNA and newer biological aspects such as Kreb's Citric Acid Cycle and energy exchange.
5. Selected topics in genetics.
6. American Archaeology and paleontology.
7. The species concept.
8. The building of small mammal traps and the preparation of mammal study skins.
9. Seining of fish and other aquatic to identify and preserve.
10. Collecting, identification, pressing and mounting of local flora.
11. A brief survey of the parasitic fungi and other plant diseases.
12. Other topics of interest to the students.

A unique feature of the course was that no grade was given. Credit could be given by the student's own school if it chose. Students didn't work for a grade but for the enjoyment of learning. The student received a certificate of attendance at the completion of the course, and a note was made in his permanent record.

The students were assigned the following tasks:

1. A report to be written in strict scientific style on each of the major field trips. These reports were criticized and returned. All reports showed great improvements.
2. Collection, identification, pressing and mounting of 6 species of plants.
3. Trapping and mounting of at least two species of mammals.
4. Selected reading from time to time in specific areas.

One, two and three of the above were on display the final evening together with students work from the other classes.

In critique, the program was very successful. Students met people with common interests—both as student-friends and as leading authorities. They gained much in knowledge and respect for our natural surroundings. Some developed new hobbies and recreations. They learned how to write a scientific paper. Some were given direction for the future. Many learned the satisfaction of learning for knowledge and not "just a grade". All 16 students were very happy that they had attended the program.

Concern, cooperation and effort are the ingredients. Can you develop a program for your area? It is worthwhile.