

The Science Club—An Effective Teaching Device

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For many years the general public has been conscious of the value of creativity in the teaching of art, music and literature. But today *progressive* science teachers feel a great need for creativity as a form of motivation in the *teaching of science*. The science teacher has unlimited opportunities to encourage students to develop their *creative abilities*.

When I began teaching General Science in the Norman Junior High School I noted a large group of boys and girls who seemed to be left out of extra curricular activities. I seemed to discover an urgent need for an added school activity, so I decided to do something about it. Being a science teacher, with a heavy teaching schedule, naturally, I thought of a science club activity in order that these students would have a feeling of belonging to their school and community.

This idea occurred to me during the school year of 1946-47. Along with this urge, there was also a definite realization among science teachers, that the heavy class load was not due to a shortage of funds, but it was the result of the lack of available science teachers. About this time science teachers were asked to sponsor the Science Clubs of America program.

Through this science club many of the problems of my five classes of general science found expression. Namely, participation in various school drives such as Red Cross, Cancer, Heart Fund, and financing and preparing floats for our homecoming games. The club raised money for a page in the school year book, which explained in picture and discussion the aims and activities of the *science club*. For one of my group projects the club paid for enough bicycle racks for the entire junior high school.

The Norman Junior High Science Club has always been self-supporting. Money has been raised in various ways—some of which are: bake sales, rummage sales, fruit sales, skating parties, the selling of Christmas cards, and talent shows. The Club charged for entry of one talent show (1952) and netted \$98.00 for a one-hour performance.

To sponsor such a club, there are many challenges to be met. It is the responsibility of the science teacher to discover the science talented youth. A science club can be an efficient teaching device, because it furnishes a laboratory of varied experiences for the development of new ideas of boys and girls.

This science club has been continuous since its organization. During its early history its members worked on group projects, with fairly large groups working together. But as the years have passed it has changed in tempo as well as to the type of projects. Each year I note a greater development in the field of leadership until at present its officers and committee groups have become a source of motivation for more efficient science teaching. A place to produce child-made and teacher-made equipment, a workshop to increase the student's knowledge of science, give service to their community and help to carry out the programs of science in America.

Now just how and why does the Norman Junior High Science Club operate? I operate this club to help its members to learn more science and become useful citizens. Any boy or girl interested in science may become a member. We try to make it a club where both retarded and superior students can discover and develop, as far as possible, their skills and talents in science.

In this club students have an opportunity to learn from each other by exchange of ideas. Every member is given a chance to choose any problem

or project in which he or she is interested. I call on the staff members of the University of Oklahoma, high school science teachers, business men, or any person qualified and willing to guide or assist students with their problems or projects.

Good leadership is very essential to any club. During the second or third week of school, I announce in the school bulletin, that on a certain date and place a meeting will be called at 3:20 P. M. to organize a Science Club. Previous to this announcement, I explain to each of my general science classes the objectives and purposes of such a club.

Each class chooses tentative officers. When the above meeting is called to organize the club, the prospective club members are ready to choose the club officers, from the five different groups selected by each general science class. I have learned this procedure creates more interest in our club organization and provides a better choice of leadership.

At our second meeting of the club, a program for the year is worked out. We meet twice a month, sometimes more often. Its members decide which day of the week is best for our business session. Other school activities are related since some of its members have certain dates determined by the school calendar. We also decide how many excursions, lectures and demonstrations we will have and determine a calendar date for each. At the close of the meeting, this information is given to a committee that prepares a copy for each member, to be distributed at the third business meeting of the club.

The club officers make every effort to promote leadership within the group. This idea is carried out with each club activity, but when a committee is appointed the Chairman of the group is expected to assume leadership and carry to completion the work to be done.

On educational tours the officers assume leadership in regard to contacts, ushers, and general guidance throughout the tours. With other activities, officers may appoint needed committees to assume the responsibility of the work to be done, with one of the committee group, acting as chairman, who reports to the club officer or the club sponsor.

During our science assemblies the science club officers have full charge of the planning and execution of the program, with the President working with the sponsor to see that each detail is carried out.

There are many evidences in the Norman Junior High School which seem to point the way that our science club has become an effective teaching device.

Since this club has been sponsoring the Cleveland County Science Fair, for the past three years, the junior high school science teachers have been giving attention to motivation as well as to the development of science experiments, demonstrations and class projects. Many of these projects are developed to meet individual interests and needs of general science students and in many respects science becomes a way of behaving.

In the development of science projects, many different scientific principles are taught. Our boys and girls develop technical skills. They gain much information from study and contact with their sponsors. Each time a teacher or sponsor has a conference with a student or group of students in the guidance of projects, an increase of class interest is built up. All these contacts indirectly make the teaching of general science more efficient.

An effective science club can be a force for good in any community. When children work together in large groups, a bond of good will results if these contacts are pleasant and enjoyed. For example, last year my science

classes had completed the study of "Classification Of Living Things" and were studying the adaptation of plants and animals. The club made an educational tour of the school of Zoology at the University of Oklahoma. The University professor had a carefully planned display of zoological specimens on three different floors. He lectured to the students and discussed this material with them. By the time the club had reached the Museum (the basement) they were asking many scientific questions about both preserved and live specimens of living things.

Now you may be wondering how do such experiences affect the classroom teaching of general science? When these science club members were back in the classroom, I noted a greater desire to learn correct classification. At various times during our class discussions, they either asked questions or gave further comments on what was seen. Their experiences greatly enriched the class discussions and provided a greater variety of classified knowledge for the students that had not made the excursion.

In the city of Norman the science club is becoming a community link between our junior high school and the University of Oklahoma. Through our contacts, the club members get a greater glimpse of the vast research projects. They learn something of the impact of scientific thought at a chemistry show. They are allowed to study in the museum. They have the privilege and training from guided tours, lectures and demonstrations in the research institute of physics.

Each spring the science club tours the engineer's open house. A senior petroleum engineer explains the displays to the club members. Last year the guide was a former officer of our science club. On such tours students are given the opportunity to ask questions. It is encouraging to hear students discuss among themselves, as well as in the classrooms, the scientific principles learned, and to hear them ask technical questions on how the different types of engines do their work.

Members of the science club are interrelating ideas from the 4H Club in that many of the class representations of projects are worked out on the captain and co-captain basis. This procedure gives leadership to more students and creates a greater interest. It also decreases monotony because two pupils are more at ease working as a team.

After the students had studied "How We Make And Use Electricity" two students, who had spent much time working on magnetism and electricity as a project, gave a teamwork demonstration and discussion. This included how to make a simple cell, what constitutes a dry cell, a diagram of unmagnetized and magnetized iron, the difference between series and parallel circuits and how to construct a two-way system.

A teacher can detect a wide range of interest by careful observation of his class group. This project, as was given, was not too easy nor too difficult. There are phases of it which challenge most every student if the teacher can train and guide the team to present it in a way to stimulate thought.

The group project of the Norman Junior High School for the year 1954-55 is the study, collection and preparation of a science museum. It will be a growing source of various collections, projects and materials suitable for teaching aids in the classrooms of the Norman public schools.

Last year the Art department borrowed several of our stuffed birds from our science museum to be used for students to study and prepare posters to enter our state contest, the topic of which was "Hawks and Owls, Our Friends." To me this is an example of an intercorrelation of art and science teaching. And the activity of the science club has become an effective teaching device for more creativity in the field of art.

After sponsoring a science club for ten years, I am convinced that such an organization encourages students to live more intensely and helps them to better understand their environment in what ever community they may live. Even if your laboratory facilities are limited for project work, it causes boys and girls to be resourceful and devise or create what they need. The reward for this type of work is very satisfying indeed because it makes for more realistic teaching of science.

In sponsoring this type of program, some frustrations must be expected to exist in our laboratories and classrooms, because where learning takes place there will be errors and frustrations.

If you have never sponsored a science club, try it once. You may be surprised to learn how much interest a science club can create in your school and community. This club is affiliated with the National Clubs. Since 1951 my students have won 6 school plaques, 6 War bonds, 1st-2nd places and 37 Honorable Mention Awards in the Future Scientists of America Award Program of N. S. T. A.
