

1982

The Role of the Laboratory in High School Physics

Hank Biere
Anamosa High School

Follow this and additional works at: <https://scholarworks.uni.edu/istj>



Part of the [Science and Mathematics Education Commons](#)

Recommended Citation

Biere, Hank (1982) "The Role of the Laboratory in High School Physics," *Iowa Science Teachers Journal*: Vol. 19 : No. 3 , Article 7.

Available at: <https://scholarworks.uni.edu/istj/vol19/iss3/7>

This Article is brought to you for free and open access by UNI ScholarWorks. It has been accepted for inclusion in Iowa Science Teachers Journal by an authorized editor of UNI ScholarWorks. For more information, please contact scholarworks@uni.edu.

THE ROLE OF THE LABORATORY IN HIGH SCHOOL PHYSICS

Hank Biere

Anamosa High School

Anamosa, Iowa 52205

I'm sure many articles have been written on the role or use of the laboratory in high school physics. So many, in fact, that I'm not sure I can add much of anything that is really new and unique. In spite of the fact that during the last 10 to 12 years we've become very much aware of writing objectives (behavioral type), we've probably not given much thought to objectives of the lab. In some cases we come to a certain place in the book and it's time to do a lab; so we do it without much thought as to why. Probably, and more specifically, we think about the objectives or reasons for doing a lab experiment and evaluate whether or not it's worth including as a part of the course work.

In the past 20 years or so, with the introduction of new curricular materials, we've seen the objective of the lab change from a very traditional role of verification of text material to one that might best be described as "inquiry." There is no doubt that any list of objectives of the physics lab would have to include statements directed toward these two aspects. It is my belief, though, that a more important objective of the physics lab should be to show physics as a process. This should very much be the case if the elementary and junior high schools, which provide us with our students, use a so-called "process" approach to science. These programs are "hands-on" types of courses that illustrate science as a way of doing things. If this approach is not continued through a student's high school career, it's bound to cause a turn-off on science. If we, as physics teachers, wish our courses to be something more than facts learned from a text, then the thing that "process" represents becomes increasingly more important. It is the laboratory then, that gives the student the chance to develop a way of doing things, i.e., a process. This would include skills related to problem solving, observation, data collecting and organization of the data, looking for patterns and regularities, and reaching conclusions. These are certainly skills that are important for the scientist. Are they any less important for someone not going on in science? It would seem that if you want the general public to be more scientifically literate, you would want them to be more aware of what science is all about and how our factual knowledge is learned and how it is put to use. It would seem that the laboratory would be important to teach this aspect.

There are many lab skills that evolve through the process approach. Such things as learning to use the balance correctly and interpreting the

accuracy and uncertainty of the measurement can only be learned by experience. Obviously, any other type of measurement would be subject to the same procedures. These too, then must be considered an important reason for including labs as part of introductory physics.

In reality, our introductory physics courses combine the lab and its process of science with a text as a source of information. Problem solving is also an integral part of the text as well as with the lab. It is a balance between the two that probably makes for a good physics program.

National Youth Science Camp for Iowans

One hundred recent high school graduates representing every state in the nation arrived at Camp Pocahontas near Bartow, West Virginia on July 7 to begin a three-week visit to West Virginia as delegates to the National Youth Science Camp (NYSC).

For three weeks the delegates will participate in a variety of NYSC activities. Camp schedules include seminars and lectures by noted guests such as Noel Hinners, Director of NASA's Goddard Space Flight Center; Dr. Gerald Soffen, Director of Life Sciences, National Aeronautics and Space Administration; and Mr. Paul Garber, Historian Emeritus, National Air and Space Museum, Smithsonian Institution. Topics range from all areas of science and engineering to mathematics and music.

Diversified outdoor activities are scheduled to introduce delegates to West Virginia's hiking trails, mountains, and white water rivers. A full sports program and an arts and crafts program are included. A photography darkroom, a computer center and a natural sciences laboratory are also available for the campers' use.

Scheduled trips for delegates include a tour of the National Radio Astronomy Observatory and a visit to Washington, D.C., where the delegates are guests of honor at a Senate luncheon.

The purpose of the National Youth Science Camp is to honor the nation's most outstanding science-oriented students. Every year the Governor of West Virginia requests the governors of every state to select their state's delegates. Criteria for selection as a delegate to the NYSC include high grades and accomplishments in the sciences, abundant leadership potential and a professed intention to enter into one of the scientific fields.

Iowa's 1982 NYSC delegates are Lisa Crabill of Farmington and Mary Cummings of Earlsville. Lisa plans to attend Iowa State University; Mary will pursue her studies at Clarke College.