

One Answer to Lab Assistants

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Another report on how to administer the lab assistant program.
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Irvington High School, like many high schools, now gives credit to students serving as biology lab assistants. These students perform many laboratory tasks and are a great help to the biology teacher who seems to be always short of time.

There are some problems however. It often requires as much time on the part of the teacher to prepare material for a lab assistant as it does for a class. Without adequate planning the lab assistant program would be worthless. Too often the lab assistant program is just another name for dish washing and lab clean-up. We have tried to make our program something more than dishwashing, and at the same time, we have tried to set it up so that teacher preparation time is within reason. I believe that we have been successful enough to warrant passing our ideas on to you.

Laboratory assistants are selected in the spring prior to the year that they serve. They are selected from successful biology students who have had chemistry or who are taking chemistry during the year they are lab assistant.

Careful selection of the lab assistants is probably the most essential criterion for a successful laboratory assistant program. A poor lab assistant can cause the teacher more trouble and work than the program warrants and is actually not very fair to the student who has been selected for something that he is not capable of handling. We look for the following traits in selecting our assistants:

1. The student should show in biology class that he has a keen interest in

biology and aptitude in laboratory work.

2. The student should indicate that he intends to make biology a future career.
3. The student should have demonstrated that he is capable of working independently.
4. The student should have a high grade point average. This is an indication of maturity.

After the students have been selected we meet with them and outline the program. At this time they are given the option of dropping out. Some of them, after realizing that the lab assistant grade is not automatic, change their minds.

The program is outlined as follows: The first quarter is devoted to selecting a topic that they wish to pursue and doing the library research on the topic. Students will need assistance in selecting a topic, and the teacher must take care that the student selects something that is within their capability yet challenging enough to keep their interest throughout the year.

We are fortunate in having several colleges and two fine universities within a few minutes drive. Once each week during the first quarter we take the lab assistants to one of the libraries so that they can do their library research. We are deeply indebted to California State College for their help with the library phase of our program. At the end of the first quarter the students submit a report on their library research.

The second and third quarter are devoted

to a laboratory experiment involving their topic. This is where the student comes to grips with all of the frustrations of the working scientist. The experiments often lead to science fair projects and in the case of one student to participation on a TV show.

During the fourth quarter the student submits his paper which now includes the library research and the experiments he has done. He is given a date in the middle of the fourth quarter, and all of the lab assistants meet to hear his report. A seminar

session is conducted and suggestions for improving the paper are made by his fellow students under the guidance of the biology staff. The student then prepares his final paper and it is placed in the school library.

We are pleased with this approach to biology lab assistants. The student feels that he is learning to work as a scientist, he takes pride in completing a task and other students respect the lab assistant as something more than a lab helper and dish washer.

Letters to the Editor

Dear Editor:

The April issue of ABT contained an illuminating (?) letter to the editor, ostensibly presenting a rational argument for the proper time to teach evolution in the high schools. Bleifeld states that there is a "widespread interest in the teaching of this subject in the high school biology course." I should hope so. If this were not the case, I would seriously question the competence of those who taught otherwise.

The concept of evolution is overwhelmingly *the* concept to be developed, explained, and understood among all the major concepts in biology. As a single, unifying idea it enables one to relate the whole, vast body of biological information into a potentially meaningful system. A teacher may not want to do this relating every day of the course, but what he should want to do is put the student in a frame of mind so that the student has the opportunity to see and to make the connections.

Implantation of the concept of evolution early in any biology student's mind then provides a selective *mechanism* for treating information, a *scaffold* for building cognitive models, a *force* which pushes and pulls data and procedures.

Mr. Bleifeld uses the argument of the open mind, of the objective student for holding back on the idea of evolution until the student has the exposure. Note that the weighing of evidence is in terms of something. The idea of weighing evidence is a relationship of something to something. Give me two pieces of

evidence to compare. To compare with each other—nonsense. To compare with an idea or against an idea—of course. Darwin himself consciously looked for all evidence *not* substantiating his theory so he could assess its weaknesses before anyone else did and so that his *argument* could be sound both logically and experientially.

If one is sincerely interested in treating the scientific process (as Mr. Bleifeld assuredly is), one must set the stage in terms of an idea (as a problem, hypothesis, or whatever) to be followed by all degrees of sophistication of the investigatory procedures.

Anton J. Carlson always asked; "Vat is da evidence?" I ask: Evidence *for* what, *against* what?

Incidentally many teachers follow Mr. Bleifeld's suggestions. They leave evolution for the last week in May or even the last week in June. Some are shouting. "Read the chapter on evolution" as students rush through summer vacation doors. This may be quite all right: students thus come to us at the college level with an open and uncluttered mind.

Again incidentally, look at the Chem Study program. You will find that the concept of the atomic theory is introduced almost immediately. It would not be most effective to hold this major concept for the end of the year's course. And it is most ineffective "to consider the teaching of evolution toward the end of the year's course" in biology.

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