



Teaching Science Classically: 10 Essential Principles with John D. Mays

Lesson 9: Apprenticeship

Outline:

Apprenticeship

- A study of science labs shows that labs do not reinforce the lecture.
- We should think of labs as helping students to learn what they can't learn in the text book.
- Labs are a good opportunity for the apprenticeship model.
- In science there are quite a few things that are difficult to teach in a book.
 - Proper measurement techniques
 - Reading at the bottom of a liquid meniscus
 - Avoid parallax error
 - Use every resource at your disposal to make accurate measurements.
 - The art of journaling, thoroughly document your research
 - Whoever goes off to be a scientist needs to develop these habits.
 - Teach students how to store materials and to clean up in a lab.
 - We all must be fastidious in a chemistry lab.
 - We need a constant awareness of safety practices.
 - Exhibit the proper degree of respect for hazardous substances.
 - Preparation of standard solutions
 - Preparation of apparatus (set up and tear down)
 - Students need to work with their hands.
 - Approach a new apparatus and figure out how to use it.
 - Using parts and supply catalogues.
 - Report writing
 - Report writing itself has many subskills in it.
 - You have to try it and have someone criticize it and hand it back to you and correct it.