

Designing Lab Exercises: Cue Sheet

Schwab/Herron model of lab exercises

Typically activities and exercises included in ILTs are mere cookbook activities---you state the problem, tell participants the ways and means of solving the problem and also provide the solution.

In a CSTA Journal, McComas (1997) explained how *openness*--- the degree to which students make decisions about the problem, the procedure and/or the answers is often scarce during laboratory activities. He presented a table, reproduced below for classifying levels of laboratory openness.

Level	Problem	Ways & Means	Answer
0	Given	Given	Given
1	Given	Given	Open
2	Given	Open	Open
3	Open	Open	Open

A level 0 activity is one in which the teacher or lab manual decides the question or problem students will investigate, how students will do the investigation, and the validity of the investigation's results. Students make few decisions-other than deciding whether they got the "right answers."

A level 3 activity represents the other extreme. Students decide what to investigate, how to investigate it, and how to interpret the results they generate. Level 3 activities are what most scientists do; level 0 activities are what most students do.

Source from which information regarding this model is taken:
http://www.exploratorium.edu/IFI/resources/workshops/lab_activities.html