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Using Lab Reports to Achieve Specific Learning Goals in a Wide Range of Laboratory Settings

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Abstract

By incorporating lab reports into various types of laboratory investigations, we can offer students the opportunity to become involved with the process of science—learning how to ask scientific questions, explain them, defend them, and communicate findings. Usually, lab reports are assigned when students conduct hypothesis-driven lab experiments; however, there are different types of lab reports that respond to different learning situations in the lab. Lab reports can lend themselves well to “descriptive labs” – labs based on observation, such as microscope labs or dissections, or labs centered on learning laboratory procedures. The descriptive lab report is a response to a lab that doesn’t lend itself to making a hypothesis. Instead of hypotheses, students ask questions before and during the lab, write down observations, make drawings, explain scientific concepts, and discuss what they learned. Lab reports also fit in well with learning situations in which students are asked to design their own lab experiments. This type of lab report focuses on a problem and experimental design formulated by the student. It is a good preparation for learning how to write research proposals and scientific papers. Another scenario that calls for a specific type of lab report is a lab course in which students write a “partial lab report,” writing only one or more sections of the report at a time, building a lab report gradually over a term. In this workshop, we’ll explore these different types of lab reports and how to incorporate them into your lab courses with the help of LabWrite, a free online tutorial that addresses lab report writing for a variety of laboratory formats. The goal of the workshop is to help biology lab instructors become more aware of the kinds of learning they can promote by increasing the opportunities for lab report writing in all lab investigations, especially those traditionally not thought of as suitable for lab report writing. Workshop participants will get hands-on experience with LabWrite as they explore multiple types of laboratory reports in the context of various kinds of lab experiences.