

Critical Work Function: Provide routine facility support

Key Activity | Monitor, maintain, and troubleshoot/repair equipment

Critical Work Function: Perform measurements / tests / assays

Key Activity | Interpret and/or analyze data and results as appropriate

Critical Work Function: Record information according to established procedures

Key Activity | Record information according to established procedures

Critical Work Function: Perform mathematical manipulations

Key Activity | Perform data analysis

Title: Maintenance of equipment logbook

Assessment:

Students should be comfortable monitoring and maintaining equipment and should recognize the importance of performing these tasks on a regular basis. At the beginning of an appropriate course, students can be assigned a piece of equipment and shown the equipment's logbook. The logbook should indicate a schedule for performance verification. The instructor can check the logbook at mid-semester and again at the end to ensure that the student has maintained the schedule.

For example, a student may be assigned to a pH meter and required to maintain the following logbook:

Logbook for pH meter ID # _____										
All pH meters must be checked on a three week schedule.										
Date	Your name	Standard #1		Standard #2		Standard #3		Calculated slope (mV/pH)	% efficiency	Next steps
		pH	mV	pH	mV	pH	mV			

In this example, the student is required to make a graph of pH (x-axis) versus mV (y-axis) and to report the slope of the line in the logbook. % efficiency of the electrode is determined by the following equation:

$$\% \text{ efficiency} = \frac{\text{calculated slope} - 59.2 \text{ mV/pH}}{59.2 \text{ mV/pH}} \times 100\%$$

Where 59.2 mV/pH is the slope obtained with a 100% efficient electrode.

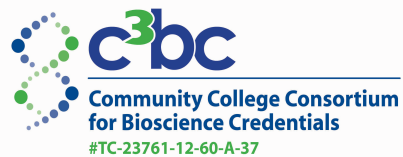
In the "Next steps" column, the student can be instructed to record what should be done next. If the electrode has acceptable efficiency, then "none" can be recorded in this column. If the electrode is found to be performing poorly however, the student can note whether they then cleaned the probe, found that it needs to be replaced, etc.

Resources for teaching:

- Seidman, L.A., and C.J. Moore. 2009. Basic Laboratory Methods for Biotechnology Pearson Education, Inc., San Francisco, CA.

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- Seidman, L.A., M.E. Kraus, D.L. Brandner, J. Mowery. 2011. Laboratory Manual for Biotechnology and Laboratory Science Pearson Education, Inc., San Francisco, CA.



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