

Student Outcome (6): experimentation

An ability to ¹develop and ²conduct appropriate experimentation, ³analyze and interpret data, and ⁴use engineering judgement to draw conclusions.

Performance Indicator:		Rubric			
		Unsatisfactory	Developing	Meets expectations	Exceeds expectations
a	Develop appropriate experimentation - identify experiment goals - describe experimental process and procedures to achieve the goals	Does not identify goals nor determine appropriate data to collect. Does not identify or describe applicable experimental processes and/or viable procedures.	Identifies some goals and/or data, but may be inadequate for the intended experiment. Describes <u>some</u> applicable experimental processes or partial procedures.	Identifies necessary and sufficient goals and appropriate data to be collected. Describes one set of applicable and sufficient experimental processes and procedures.	Identifies goals and relevant data that extend the original scope of the experiment. Generates multiple applicable experimental processes and procedures
b	Conduct appropriate experimentation - acquire data - present data in a meaningful way	No data presented. -or- No evidence of thought given to a clear presentation of data to help the reader understand the data.	Some data presented, but presentation is incomplete or unconvincing. Reader can grasp general idea, but may have some difficulty understanding the presentation details.	Sufficient data acquired. Applies relevant data reduction and presentation techniques. Reader can understand the data presentation with little to no difficulty.	Invents new data reduction techniques or new data presentation and visualization techniques. Data presentation is exceptionally concise, yet clear and informative.
c	Analyze and interpret data - compare findings to expected results - summarize findings	Findings neither summarized nor related to expected results. -or- Analysis performed incorrectly.	Summarizes findings in an incomplete way. Can make some sense of the data, but results not compared to expected outcomes.	Summarizes findings in a complete way and compares them to expected results.	Derives unique insight or conclusions from the experimental data.
d	Use engineering judgement to draw conclusions	Can't reach meaningful conclusions for the experiment. -or- Makes wrong conclusions.	Extracts <u>some</u> valid conclusions for the experiment, but may miss some valid conclusions.	Extracts all relevant and valid conclusions from the experiment.	Uses conclusions to propose new questions and experiments.