

RUBRIC G: Ability to collect and analyze experimental data

Scientific Ability		Missing	Inadequate	Needs improvement	Adequate
G1	Is able to identify sources of experimental uncertainty	No attempt is made to identify experimental uncertainties.	An attempt is made to identify experimental uncertainties, but most are missing, described vaguely, or incorrect.	Most experimental uncertainties are correctly identified. But there is no distinction between random and experimental uncertainty.	All experimental uncertainties are correctly identified. There is a distinction between experimental uncertainty and random uncertainty.
G2	Is able to evaluate specifically how identified experimental uncertainties may affect the data	No attempt is made to evaluate experimental uncertainties.	An attempt is made to evaluate experimental uncertainties, but most are missing, described vaguely, or incorrect. Or only absolute uncertainties are mentioned. Or the final result does not take the uncertainty into the account.	The final result does take the identified uncertainties into account but is not correctly evaluated. The weakest link rule is not used or is used incorrectly.	The experimental uncertainty of the final result is correctly evaluated. The weakest link rule is used appropriately and the choice of the biggest source of uncertainty is justified.
G3	Is able to describe how to minimize experimental uncertainty and actually do it	No attempt is made to describe how to minimize experimental uncertainty and no attempt to minimize is present.	A description of how to minimize experimental uncertainty is present, but there is no attempt to actually minimize it.	An attempt is made to minimize the uncertainty in the final result is made but the method is not the most effective.	The uncertainty is minimized in an effective way.
G4	Is able to record and represent data in a meaningful way	Data are either absent or incomprehensible.	Some important data are absent or incomprehensible. They are not organized in tables or the tables are not labeled properly.	All important data are present, but recorded in a way that requires some effort to comprehend. The tables are labeled but labels are confusing.	All important data are present, organized, and recorded clearly. The tables are labeled and placed in a logical order.
G5	Is able to analyze data appropriately	No attempt is made to analyze the data.	An attempt is made to analyze the data, but it is either seriously flawed or inappropriate.	The analysis is appropriate but it contains minor errors or omissions.	The analysis is appropriate, complete, and correct.