

RUBRIC C: Ability to design & conduct an experiment to test an idea/hypothesis/explanation or mathematical relation				
Scientific Ability	Missing	Inadequate	Needs improvement	Adequate
C1 Is able to identify the hypothesis to be tested	No mention is made of a hypothesis.	An attempt is made to identify the hypothesis to be tested but is described in a confusing manner.	The hypothesis to be tested is described but there are minor omissions or vague details.	The hypothesis is clearly stated.
C2 Is able to design a reliable experiment that tests the hypothesis	The experiment does not test the hypothesis.	The experiment tests the hypothesis, but due to the nature of the design it is likely the data will lead to an incorrect judgment.	The experiment tests the hypothesis, but due to the nature of the design there is a moderate chance the data will lead to an inconclusive judgment.	The experiment tests the hypothesis and has a high likelihood of producing data that will lead to a conclusive judgment.
C4 Is able to make a reasonable prediction based on a hypothesis	No prediction is made. The experiment is not treated as a testing experiment.	A prediction is made but it is identical to the hypothesis, OR Prediction is made based on a source unrelated to hypothesis being tested, or is completely inconsistent with hypothesis being tested, OR Prediction is unrelated to the context of the designed experiment.	Prediction follows from hypothesis but is flawed because * relevant experimental assumptions are not considered and/or * prediction is incomplete or somewhat inconsistent with hypothesis and/or * prediction is somewhat inconsistent with the experiment.	A prediction is made that * follows from hypothesis, * is distinct from the hypothesis, * accurately describes the expected outcome of the designed experiment, * incorporates relevant assumptions if needed.
C5 Is able to identify the assumptions made in making the prediction	No attempt is made to identify any assumptions.	An attempt is made to identify assumptions, but the assumptions are irrelevant or are confused with the hypothesis.	Relevant assumptions are identified but are not significant for making the prediction.	Sufficient assumptions are correctly identified, and are significant for the prediction that is made.
C6 Is able to determine specifically the way in which assumptions might affect the prediction	No attempt is made to determine the effects of assumptions.	The effects of assumptions are mentioned but are described vaguely.	The effects of assumptions are determined, but no attempt is made to validate them.	The effects of the assumptions are determined and the assumptions are validated.
C7 Is able to decide whether the prediction and the outcome agree/disagree	No mention of whether the prediction and outcome agree/disagree.	A decision about the agreement/disagreement is made but is not consistent with the outcome of the experiment.	A reasonable decision about the agreement/disagreement is made but experimental uncertainty is not taken into account.	A reasonable decision about the agreement/disagreement is made and experimental uncertainty is taken into account.
C8 Is able to make a reasonable judgment about the hypothesis	No judgment is made about the hypothesis.	A judgment is made but is not consistent with the outcome of the experiment.	A judgment is made, is consistent with the outcome of the experiment, but assumptions are not taken into account.	A judgment is made, consistent with the experimental outcome, and assumptions are taken into account.

Rubric C3 no longer exists. It has been merged into C4. To preserve references the rubrics have not been renumbered.