

Experimentation Rubric

	5 Excellent Progress	4 Very Good Progress	3 Good Progress	2 Basic Progress	1 Progress Needed
Problem Solving	<ul style="list-style-type: none"> Hypothesis shows thought and advanced understanding of the procedures. Written as an If...then...because statement. Relates to experiment and is able to be tested. The rationale is correct Observations are clear and accurate. Complete thoughts. Highly detailed. Relates to previously learned material. Conclusion shows complete understanding of experiment. Contains all <u>4</u> of the following: <ol style="list-style-type: none"> 1. Accurately answers the Problem. 2. Discusses in detail the validity of hypothesis. 3. States what was learned from conducting the experiment. 4. Offers suggestions for modifications to create different results (changing of variables) and/or relates to "real-world" situations. 	<ul style="list-style-type: none"> Hypothesis shows thought and basic understanding of the procedures. Written as an If...then...because statement. Relates to experiment and is able to be tested. The rationale is incorrect Observations are clear and accurate. Complete thoughts. Some details present. May relate to previously learned material. Conclusion shows understanding of experiment. Contains all <u>3</u> of the following: <ol style="list-style-type: none"> 1. Answers the Problem - may be partially accurate. 2. Discusses validity of hypothesis. 3. States what was learned from conducting the experiment. 	<ul style="list-style-type: none"> Hypothesis shows some thought and some understanding of the procedures. Written as an If...then...statement (missing rationale) May relate to experiment and might be able to be tested. The rationale is not present Observations are partially accurate but may have inaccuracies. Partially complete thoughts. Some details present. Does not relate to previously learned materials. Conclusion shows some understanding of experiment. Contains only <u>2</u> of the following: <ol style="list-style-type: none"> 1. Answers the Problem - may be partially accurate. 2. Discusses validity of hypothesis. 3. States what was learned from conducting the experiment. 	<ul style="list-style-type: none"> Hypothesis shows little or no thought and understanding of the procedures. Written as a prediction but not in the If...then...because format. Does not relate to experiment. The rationale is not present Observations are highly inaccurate. Shows little or no thought in responses. Lack of details. Conclusion shows little understanding of experiment. Contains only <u>1</u> of the following: <ol style="list-style-type: none"> 1. Answers the Problem - may be partially accurate. 2. Discusses validity of hypothesis. 3. States what was learned from conducting the experiment. 	<ul style="list-style-type: none"> Hypothesis not written. Observations are missing or illegible. Conclusion is missing or is unrelated to experiment.

	5 Excellent Progress	4 Very Good Progress	3 Good Progress	2 Basic Progress	1 Progress Needed
Decision Making	<ul style="list-style-type: none"> • Accurately identifies all decisions to be made during experiment. • In making decisions regarding lab procedures, determines and considers multiple possible alternative procedures. • Weighs the positive and negative consequences of alternative decisions and implements most appropriate decision. • Analyzes alternative ideas and bases laboratory procedural decisions based on multiple facts. • Objectively analyzes lab/procedural decisions and makes insightful and accurate judgments into the success or failure of decisions. 	<ul style="list-style-type: none"> • Accurately identifies most decisions to be made during experiment. • In making decisions regarding lab procedures, determines and considers some possible alternative procedures. • Weighs the positive and negative consequences of alternative decisions and implements a decision, though not the most appropriate. • Analyzes alternative ideas and bases laboratory procedural decisions based on few facts. • Objectively analyzes lab/procedural decisions and makes insightful, yet flawed, judgments into the success or failure of decisions. 	<ul style="list-style-type: none"> • Identifies many decisions to be made during experiment, but omits important decisions. • In making decisions regarding lab procedures, determines and considers few alternative procedures. • Weighs the positive and negative consequences of alternative decisions but choices are erroneous. • Subjectively analyzes lab/procedural decisions and makes subjective judgments into the success or failure of decisions. 	<ul style="list-style-type: none"> • Inaccurately identifies decisions to be made during experiment. • In making decisions regarding lab procedures, makes irresponsible choices. • Fails to weigh the positive and negative consequences of alternative decisions and selects "gut feeling" decision. 	<ul style="list-style-type: none"> • Unable to or unwilling to identify decisions. • Decisions inappropriate. • Decisions not made.

	5 Excellent Progress	4 Very Good Progress	3 Good Progress	2 Basic Progress	1 Progress Needed
Interaction	<ul style="list-style-type: none"> Routinely provides useful ideas when discussing experiment with partner. Information is organized in a clear, logical way. It is easy to read. Partners work cooperatively and share ideas. 	<ul style="list-style-type: none"> Usually provides useful ideas when discussing experiment with partner. Most information is organized in a clear, logical way. Partners generally work cooperatively, but tensions do arise. These tensions are resolved to the satisfaction of both partners. 	<ul style="list-style-type: none"> Provides some useful ideas when discussing experiment with partner, but generally follows partners lead. Some information is written in a confusing manner. Partners somewhat work cooperatively. Partners share most ideas before being acted upon. Tensions are frequent and are resolved generally to the satisfaction of both partners. 	<ul style="list-style-type: none"> Provides minimal input in experiment planning with partner. Allows partner to do most of the planning. There is little concern with written information (misspellings, incomplete thoughts, etc.). Few ideas are shared; tensions are high and rarely resolved. 	<ul style="list-style-type: none"> Rarely provides useful ideas when discussing experiment or refuses to participate. Written material is confusing and does not make sense, or none is written. No ideas are shared amongst partners, tensions are high and unresolved. Partners refuse to work together.
Higher Level Thinking	<ul style="list-style-type: none"> Shows detailed evidence of multiple approaches to solve the problem. Makes accurate hypothesis with correct rationale. Effectively evaluates the conclusion and, in detail, is able to explain how the experiment relates to the problem. Offers many suggestions for further experimentation to improve upon the solution to the problem. 	<ul style="list-style-type: none"> Shows some evidence of multiple approaches to solve the problem. Makes accurate hypothesis with incorrect rationale. Effectively evaluates the conclusion and is able to explain how the experiment relates to the problem with some detail. Offers some suggestions for further experimentation to improve upon the solution to the problem. 	<ul style="list-style-type: none"> Shows minimal evidence of multiple approaches to solve the problem. Makes somewhat accurate hypothesis with incorrect or no rationale. Evaluates the conclusion and is somewhat able to explain how the experiment relates to the problem. Offers few suggestions for further experimentation to improve upon the solution to the problem. 	<ul style="list-style-type: none"> Shows little evidence of multiple approaches to solve the problem. Makes inaccurate hypothesis with incorrect or no rationale. Evaluates the conclusion and is unable to explain how the experiment relates to the problem. Offers suggestions for further experimentation to improve upon the solution to the problem, but none are viable. 	<ul style="list-style-type: none"> Shows no evidence of multiple approaches to solve the problem. Fails to make a hypothesis. Fails to evaluate the conclusion. Offers no suggestions for further experimentation.