

The Twinkie Project



FINAL DUE DATE _____ TOTAL: /65

FOOD SCIENCE SCIENTIFIC METHOD RUBRIC

Student Name(s): _____

Hr: _____

PRELAB

Score & Comments	Required Components	Performance Level			
		Advanced (5)	Proficient (3-4)	Basic (2)	Below Basic (1/0)
	<p>Identify the Question/Problem:</p> <ul style="list-style-type: none"> -Clearly stated - Testable -Clearly defines the type of measurement being used - Clearly refined to identify the variable being tested - Narrow enough to be completed by student within one week's time <p>MUST BE IN THE FORM OF A QUESTION WITH A QUESTION MARK!</p>	In depth, detailed and concise explanation of all components	Meets all criteria	Not clearly explained or Missing some components	Missing multiple components which affected the outcome of the experiment
_____x2	<p>Background Research/Purpose</p> <ul style="list-style-type: none"> -Background Research is stated -Observations and inferences are described and related to the problem <p>**AT LEAST 4 CREDIBLE CITED SOURCES ARE REQUIRED</p>	In depth, detailed, and concise description of research, observations, and inferences *Includes MLA or APA cited sources	Meets all criteria	Not clearly explained or Missing some information	Missing research, observations and/ or inferences
	<p>Form a Hypothesis:</p> <ul style="list-style-type: none"> - Clearly identifies the testable problem - Clearly states what the student expects to happen - Clearly states why the student expects that to happen based on their background research -Clearly defines the type of measurement being tested <p>WRITTEN AS A "IF...THEN" STATEMENT</p>	In depth, detailed and concise explanation of all components	Meets all criteria	Not clearly explained or Missing some components	Missing multiple components which affected the outcome of the experiment
	<p>Design an Experiment to Test the Hypothesis:</p> <ul style="list-style-type: none"> -There is only one variable being tested -Experiment is controlled by identifying all constants 	In depth, detailed and concise explanation of all components	Meets all criteria	Not clearly identified or Missing some components	Missing multiple components which affected the outcome of the experiment

Score & Comments	Required Components	Performance Level			
		Advanced (5)	Proficient (3-4)	Basic (2)	Below Basic (1/0)
	<p>Design an Experiment to Test the Hypothesis:</p> <ul style="list-style-type: none"> - The design tests the hypothesis -Materials are clearly listed using bullets - The procedure is clearly mapped out using numbers for each step -Procedures are clear and easy to follow so that others can replicate 	In depth, detailed and concise explanation of all components	Meets all criteria	Not clearly explained or Missing some components or More than one variable being tested	Missing multiple components which affected the outcome of the experiment
	<p>Design an Experiment to Test the Hypothesis:</p> <ul style="list-style-type: none"> - The experiment is safe and doable with all safety concerns identified 	In depth, detailed and concise explanation of all components	Meets all criteria	Too few runs to get reliable data Too few data sets	Incomplete
	<p>Design Table to Collect and Organize Data/ Collect and Analyze Data:</p> <p>TABLE:</p> <ul style="list-style-type: none"> -There is a clear title with measurement units identified when needed -Columns and rows are clearly labeled with units identified when needed -Quantitative Data is accurately recorded -Qualitative notes are recorded 	Detailed and in-depth recording of the data Qualitative notes are clear and easy to understand and related to the problem	Meets all criteria	Inappropriate table or some incorrectly recorded data Reviewer has to ask questions about table to understand it Missing Qualitative Notes	Missing multiple components Table and data is incomplete and reader cannot understand the data from the experiment
LAB					
	<p>Collect and Analyze Data:</p> <p>Multiple data sets created by proper use of procedures</p> <p>GRAPH: (Bar-Comparison vs. Line-Change Over Time)</p> <ul style="list-style-type: none"> - The appropriate type of graph is selected to display the data - Title=There is no question in the reviewers mind what they are looking at - Axes= X=Manipulated Variable (your experimental variable), Y=Responding Variable (what you have measured) - Interval= Appropriately displays data to show trends/patterns and evenly spaced - Label=Axes clearly labeled, including units - Data is neat and organized 	Detailed and in-depth recording of the data	Meets all criteria	Inappropriate graph or some incorrectly recorded data Reviewer has to ask questions about graph to understand it	Missing components Graph and data is incomplete and reader cannot understand the data from the experiment

POST LAB					
_____x2	<p>Draw Conclusions:</p> <ul style="list-style-type: none"> - Student's conclusion is directly connected to and supported by their analysis of the data - Student clearly restates data, both quantitative and qualitative, in their explanation -Student explains why the data supports the hypothesis or not -Student offers a plausible explanation for unexpected outcomes -Errors and/or improvements are clearly identified...there will be some! -Student's analysis walks the reviewer through the graphed data clearly explaining what/when it happened 	In depth, detailed and concise explanation of all components	Meets all criteria	<ul style="list-style-type: none"> *Conclusion not tied to the analysis or does not clearly explain * Disconnect between the data and conclusion * Incomplete explanation of how data support hypothesis or plausible explanation of unexpected outcome 	<p>Missing components</p> <p>No connection between data and conclusion</p> <p>No attempt at analysis</p>
_____x2	<p>Communicate Results</p> <p>Student(s) clearly present each step of the scientific method as they explain their project to peers through the medium of their choice (Prezi, Google Presentations, etc)</p> <p>All group members able to participate and elaborate on information</p>	In depth, detailed and concise explanation of all components	Meets all criteria	Not clearly explained or missing some components	Missing multiple components which affect the understanding of the project