

Identify the Type of Project			
Project Category (<i>project must meet 2 of the 4 criteria</i>)			
Science _____	Technology _____	Engineering _____	Math _____

Experiment - Undertake an investigation to test a scientific hypothesis by the experimental method. One independent variable is manipulated; other variables are controlled

Part 1 - Project Vision

Level 4	Level 3	Level 2	Level 1
Complexity of Experiment			
Devise and carry out original experimental research in which most significant variables are identified and controlled. The data analysis is thorough and complete	Devise and carry out an original experiment. Identify the significant variables and attempt to control them. Analyse the results using appropriate arithmetic, graphical or statistical methods.	Extend a known experiment with modest improvements to the procedure, data gathering and possible applications	Replicate a known experiment to confirm previous findings
Content Understanding			
Student demonstrates mastery of content understanding and reflects deep understanding of current applications	Student demonstrates content understanding and reflects understanding of current applications	Content explanations is fair, however further attention to detail is required	Inconsistent evidence of content understanding
Creativity			
This highly original project demonstrates a novel approach. It shows resourcefulness and creativity in the design, use of equipment, construction and/or the analysis.	This imaginative project makes creative use of available resources. It is well thought out, and some aspects are above average	The project design is simple with some evidence of student imagination. It uses common resources or equipment. The topic is current or common one.	The project design is simple with little evidence of student imagination. It can be found in books, magazines, or on popular web sites
Innovative use of Technology			
Distinguish use of technology is evident both in product and project design	Use of technology is evident both in project and project design	Technology used simply as a presentation tool rather than integrated within project	Minimal use of technology
Evidence of Problem Solving			
Student uses a complex method of problem solving throughout project	Some problem solving evident	Inconsistent problem solving technique	Minimal use of effective problem solving

Part 2 - Planning the Project

Science Process Skills - Planning Phase			
Exceeding - 4	Meeting - 3	Approaching -2	Working Below -1
Testable Question			
	Testable and measurable/observable using specific language	Testable and measurable/observable form but not specific to the parameters (may use "better" or "improve")	Any other answer
		Scientific question that includes the variable to test and is very specific to the parameters but does not include a variable to measure	
Prediction/Hypothesis			
<ul style="list-style-type: none"> • Makes a prediction statement which is: <ul style="list-style-type: none"> -relevant to the question -testable -includes a reason and is explained in detail 	<ul style="list-style-type: none"> • Makes a prediction statement which is: <ul style="list-style-type: none"> -relevant to the question -testable -includes a reason, usually based on scientific experiences or knowledge 	Make a prediction including a reason which may be relevant but is not clearly expressed	Make a prediction statement, but the justification is missing or irrelevant
			Any other answer
Identifying Variables			
Depending on the complexity of the investigation, most or all of the necessary variables are controlled and described in detail	Depending on the complexity of the investigation, most or all off the necessary variables are controlled	Only controls some of the relevant variables	Any other answer
		Control variables that are not relevant to the investigation	
	Students identify one independent variable that fits the question	Students identify one independent variable not relevant to the question	Any other answer
	Students identify one dependent variable that fits the question	Students identify one dependent variable not relevant to the question	Any other answer

Science Process Skills - Planning Phase			
Exceeding - 4	Meeting - 3	Approaching -2	Working Below -1
Designing Investigations			
<p>Independently, student perform:</p> <ul style="list-style-type: none"> Procedures have a set of steps to test a single question Procedural design minimizes experimental bias Procedural design uses multiple trials to increase accuracy (if appropriate) Procedures are detailed enough to be repeated by someone else Procedures identify needed equipment and materials Procedures identify relevant measurements and/or observations to be made Procedures have one independent and one dependent variable and is written in a way that controls other major variables 	<p>Independently, student perform:</p> <ul style="list-style-type: none"> Procedures have a set of steps to test a single question Procedures are detailed enough to be repeated by someone else Procedures identify needed equipment and materials Procedures identify relevant measurements and/or observations to be made Procedures have one independent and one dependent variable and is written in a way that controls other major variables 	<p>Independently, student perform 3-4 of the following:</p> <ul style="list-style-type: none"> Procedures have a set of steps to test a single question Procedures are detailed enough to be repeated by someone else Procedures identify needed equipment and materials Procedures identify relevant measurements and/or observations to be made Procedures have one independent and one dependent variable and is written in a way that controls other major variables 	Any other answer
	<p>Students may require support with:</p> <ul style="list-style-type: none"> Procedural design minimizes experimental bias Procedural design uses multiple trials to increase accuracy (if appropriate) 	<p>Students may require support with:</p> <ul style="list-style-type: none"> Procedural design minimizes experimental bias Procedural design uses multiple trials to increase accuracy (if appropriate) 	

Part 3 - Analyzing the Results of the Data

Science Process Skills - Analysis Phase			
Exceeding - 4	Meeting - 3	Approaching -2	Working Below -1
Organizing and Displaying Data			
<ul style="list-style-type: none"> Charts and graphs have all appropriate titles and labels and information is plotted correctly Graphs with proper x and y axis (convention in science is for IV on x axis and DV on y axis) 	<ul style="list-style-type: none"> Charts and graphs have all appropriate titles and labels and information is plotted correctly 	Data or information need to be plotted correctly but a minor error in the labels may occur	Any other answer
Conclusion			
<ul style="list-style-type: none"> Is relevant to initial question and prediction/ hypothesis States whether data supports or refutes initial prediction States a relationship between variables and supporting evidence Reflects science understanding beyond that made available to students , indicating additional independent research Demonstrates analysis of data trends and relationships Must included suggestions to improve experimental design based on discrepant data Compares finding of other similar investigations, if appropriate 	<ul style="list-style-type: none"> Is relevant to initial question and prediction/hypothesis States whether data supports or refutes initial prediction States a relationship between variables and supporting evidence May included suggestions to improve experimental design based on discrepant data May identify discrepancies in data, noting possible sources of error 	<ul style="list-style-type: none"> Is relevant to initial question and prediction/hypothesis States whether data supports or refutes initial prediction/ hypothesis Restates only the recorded results or is a result of flawed reasoning 	Any other answer

Part 4 - Project Presentation

Oral Presentation			
Exceeding - 4	Meeting - 3	Approaching - 2	Working Below - 1
Student gives a clear, logical, enthusiastic presentation about the topics. Student is able to respond to high level thinking questions related to the topic	Student gives a clear, logical, enthusiastic presentation about the topic. Student is able to answer general questions related to the topic	Student gives a somewhat clear/logical presentation about the topic. Student is able to answer rudimentary questions about the topic	Student gives a rehearsed presentation but cannot elaborate much on questions related to the topic.

Visual Display			
Exceeding - 4	Meeting - 3	Approaching - 2	Working Below - 1
The layout of the display flows in a logical manner. The exhibit is attractive and self-explanatory. The most relevant information is what is keyed on.	The layout of the display flows in a logical manner. The exhibit is attractive and self-explanatory	All elements of the scientific method related to the project type are present but display is convoluted. Physical demonstrations distract from key findings	A standard scientific method is displayed but may not include all key science skills and/or a physical demonstration is the focus

Feedback