

8 Qualities of Literacy in Science-Formal Lab Reports

8 Qualities of	Lab Report Language		Science & Engineering Practices-NGSS
Context	Purpose Hypothesis Claim Objective	<ul style="list-style-type: none"> o An accurate, clearly stated purpose and/or hypothesis was provided at the beginning of the report or presentation and identified the variables involved. 	<ul style="list-style-type: none"> o Asking Questions and Designing Problems o Planning and Carrying Out Investigations
	Background Information	<ul style="list-style-type: none"> o Necessary background information relating to terminology and definitions, related content, safety precautions, as well as cleanup and disposal recommendations were provided. o Detailed background provides evidence of understanding of prerequisite and current information 	<ul style="list-style-type: none"> o Planning and Carrying Out Investigations
Focus	Procedure Plan	<ul style="list-style-type: none"> o A detailed, yet concise, procedure that addresses the purpose for the lab, necessary materials, chronological steps, the manner in which variables would be manipulated/controlled, the process in which data would be collected, and safety precautions. o Details allows for duplication of the procedure. 	<ul style="list-style-type: none"> o Planning and Carrying Out Investigations
Support	Data Results Graph Pictures Photos Diagrams Calculations Evidence Examples	<ul style="list-style-type: none"> o Data is recorded accurately using the proper number of significant figures and scientific notation as needed. o An appropriate data table is constructed using a title as well as labels and units. The organization of the data table is logical and includes qualitative and quantitative data as needed. Variables are easily identified. o The graph format (bar, line, scatter) is appropriate and includes a title as well as labels and units on axes. o Calculations identify the use of a defined equation, work is clearly articulated, units are carried throughout the calculations and the answer is provided with the proper units, significant figures and scientific notation. 	<ul style="list-style-type: none"> o Developing and Using Models o Mathematics and Computational Thinking o Obtaining, Evaluating and Communicating Information o Planning and Carrying Out Investigations
Critical Thinking	Analysis Application Computations Diagrams Development Explanation Justification Rationale	<ul style="list-style-type: none"> o Logical interpretations drawn from data both qualitative and quantitative is discussed and relates to the stated purpose. o Questions were answered accurately and thoroughly with reference to data. o Interpretation of diagrams or graphs were used to further develop the explanation. o Explanation of relevant calculations were used to further develop the explanation 	<ul style="list-style-type: none"> o Analyzing and Interpreting Data o Asking Questions and Designing Problems o Constructing Explanations and Designing Solutions o Developing and Using Models o Engaging in an Argument from Evidence o Mathematics and Computational Thinking o Obtaining, Evaluating and Communicating Information

	Reasoning	oNamed sources of error were identified and the effect the error had on the results is articulated.	
	Conclusion Evaluation Explanation Justification Rationale Reasoning Reflection Writing New Questions Writing and Applying Conjectures	oThe main idea of the conclusion directly relates to the stated purpose and supported by the collected data oResults are clearly stated with a summary that indicates a clear connection to data and findings oInput for refining the experimental design to achieve desirable results is thorough and logical.	o Planning and Carrying Out Investigations o Analyzing and Interpreting Data o Asking Questions and Designing Problems o Constructing Explanations and Designing Solutions o Developing and Using Models o Engaging in an Argument from Evidence o Obtaining, Evaluating and COmmunicating INformation
Vocabulary	Appropriate Use Correct Terminology Understanding of	oVocabulary was infused throughout the report and used appropriately	o Constructing Explanations and Designing Solutions o Obtaining, Evaluating and COmmunicating INformation
Conventions	Grammar & Spelling Mechanics MLA Format Proper notation	oThe report was written free of grammatical and spelling errors. oNecessary resources were cited using proper format.	
Organization	Clarity Flow Structure Transitions	oThe required format was used. oTransitions were used appropriately to help guide the reader through the report. oThe report is written to take the audience through an observation-->analysis-->conclusion-->validation	
Originality	Descriptive Words Flavor Individuality Original Thought Voice	oThe design of the procedure demonstrates ingenuity oNew ideas, extensions, and questions emerge from the design, data, and/or analysis oReflection for improvement suggests innovative thought	