Science Research Process Rubric

	4	3	2	1
Research Problem	I describe my research question clearly, completely, and in great detail. I make pertinent predictions that can be researched and tested. My hypothesis is based on conjectures with various conditions.	I describe my research question clearly. I make reasonable predictions that can be researched and tested. My hypothesis is based on conjectures with some conditions.	I describe my research question but some elements are missing. My predictions may be difficult to research or test. My hypothesis lacks some conjectures or conditions.	My research question is missing, flawed, or incompletely described. My predictions are not testable. My hypothesis is missing or not based on conjectures
Information Gathering	My collection of relevant scientific background information focuses on the research question. My search of the literature includes many diverse, relevant sources, including books, magazines, the Internet, and interviews. My gathered information is described completely, with no content errors, misstatements of fact, or misconceptions.	My collection of scientific background information is related to the research question. My search of the literature includes an adequate amount of relevant, diverse sources. My gathered information is described completely, with only minor content errors, misstatements of fact, or misconceptions.	My collection of scientific background information includes some information that is not relevant to the research question. My search of the literature includes some diversity of sources but the quantity may be minimal. My gathered information is not described completely, or my descriptions include major content errors, misstatements of fact, or misconceptions.	My collection of scientific background information is not relevant to the research question. My search of literature is limited by lack of diversity and quantity of sources. I provide a limited description of the background information.
Experimental Investigation	My investigation is a well-constructed test of the hypothesis and includes a detailed experiment that answers the research question completely. I include a clear step-by-step description of the experimental	My investigation is a reasonably constructed test of the hypothesis and includes an experiment that answers the research question. I include a step-by-step description of the experimental procedures. I	My investigation is an incompletely constructed test of the hypothesis, which has errors. I include a step-by-step description of the experimental procedure that misses some key details. I identify and address some of the	My investigation is not relevant to the hypothesis or has serious errors. My description of the experimental procedure lacks key details. I do not address key independent and dependent variables, do not provide

	procedures. I identify, address, and control all relevant independent and dependent variables; include materials with labeled diagrams and drawings of any equipment used to carry out the experiment; and describe safety measures in detail. My investigation can be replicated exactly as described.	identify and address most of the independent and dependent variables; include control of variables; include materials, diagrams, and drawings (but they are not always clearly labeled); and mention safety measures employed. I organized the information so that my investigation can be replicated.	independent and dependent variables, give some attention to the control of variables, include materials, mention equipment (but it is not shown), and describe some safety measures. I organized the information, but some parts of my investigation are missing, making it difficult to replicate.	adequate attention to control of variables, do not mention equipment used to carry out experiment, or do not mention safety measures. My information is not sufficient to replicate my investigation.
Data Collection and Display	I have a detailed description of my methods for collecting data, and data has been collected in the most efficient and appropriate ways. My statistical analysis procedures are clearly organized, and I explain my reasons for choosing them. All of my original data is included. My data is accurately recorded and displayed, and all variables are labeled.	I have a description of my methods of collecting data, and a reasonable amount of data has been collected in a sufficient manner. My statistical analysis procedures are valid, organized, and contain few errors. Most of my original data is included. My data is recorded and displayed, but my variables are not labeled.	My description of the methods of data collection is incomplete, and a minimum amount of data has been collected. I include some statistical analysis procedures and some original data. My data is recorded and displayed but may not include labels.	My description of the methods of data collection is absent, and insufficient data has been collected. I do not include statistical analysis of the data. My data has not been recorded or displayed or it has been done so incorrectly.
Analysis and Conclusion	My conclusion includes a restatement of the hypothesis, supports or refutes the hypothesis, and explains the role of the experiment in	My conclusion includes a restatement of the hypothesis and supports or refutes the hypothesis. My analysis includes	My conclusion provides some relationship to the hypothesis. My analysis includes minimal identification of patterns,	My conclusion shows no relationship to the hypothesis. My analysis does not use data to support my arguments.

	making the decision. My analysis includes identification of patterns, concepts, meanings, or structures in the data and is used as evidence to support my statements. My analysis includes identification of sources of error and explains the effect on results. My conclusion includes comparisons, interpretations, inferences, or deductions from the research information and prior knowledge. I recognize and discuss the scientific or societal implications of my research, propose solutions, and recommend new avenues of experimentation.	some identification of patterns, concepts, meanings, or structures in the data and is used as evidence to support my statements. My analysis includes identification of sources of error. My conclusion includes comparisons and interpretations, and makes some inferences or deductions. I discuss how the research is useful and propose solutions or recommend new avenues of experimentation.	concepts, meanings, or structures in the data, but these are not used as evidence to support my statements. My analysis suggests the possibility of error but identifies no sources. My conclusion compares or interprets some of the information but does not make inferences or deductions. I state that the research is useful but provide no reasoning, and I suggest some solutions or further investigations but the reasons may not completely relate to the conclusion.	My analysis does not address the possibility of error. My conclusion does not interpret information or make inferences or deductions. I do not discuss the usefulness of the research and do not recognize solutions that follow from the knowledge gained.