

Science Research Process Rubric

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

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

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