

Science Critical Thinking Rubric*

1) Identifies and summarizes the problem/question at issue (and/or the source's position).			
<i>Scant</i>	<i>Minimally Developed</i>	<i>Moderately Developed</i>	<i>Substantially Developed</i>
Does not identify and summarize the problem, is confused or identifies a different and inappropriate problem.	Identifies the main problem or question but does not recognize subsidiary or implicit aspects of the problem.	Identifies the main problem or question and some but not all of the complexities or nuances associated with the problem.	Identifies the main problem and subsidiary, embedded, or implicit aspects of the problem, and identifies them clearly, addressing their relationships to each other.
Does not identify or is confused by the issue, or represents the issue inaccurately.	Demonstrates a basic understanding of the assignment.	Demonstrates a good understanding of the assignment and related course material.	Identifies not only the basics of the issue, but recognizes nuances of the issue.
2) Identifies and presents the STUDENT'S OWN perspective and position as it is important to the analysis of the issue			
<i>Scant</i>	<i>Minimally Developed</i>	<i>Moderately Developed</i>	<i>Substantially Developed</i>
Addresses a single source or view of the argument and fails to clarify the established or presented position relative to one's own. Fails to establish other critical distinctions.	Identifies one's own position on the issue relative to other positions, but does not provide supporting evidence for the position.	Identifies, appropriately, one's own position on the issue, drawing support from experience, and information from course materials.	Identifies, appropriately, one's own position on the issue, drawing support from experience, and information not available from assigned sources
Fails to acknowledge the existence of valid counter arguments.	Fails to acknowledge the possible validity of other positions	Recognizes that there are other valid points of view.	Recognizes counterarguments that might be made and responds to them.
3) Identifies and considers OTHER salient perspectives and positions that are important to the analysis of the issue.			
<i>Scant</i>	<i>Minimally Developed</i>	<i>Moderately Developed</i>	<i>Substantially Developed</i>
Deals only with a single perspective and fails to discuss other possible perspectives, especially those salient to the issue.	Acknowledges that other perspectives exist, but fails to adequately present the case for these perspectives.	Appropriately addresses multiple perspectives, but omits at least one important perspective.	Addresses perspectives noted previously, and additional diverse perspectives drawn from outside information.
4) Identifies and assesses the key assumptions.			
<i>Scant</i>	<i>Minimally Developed</i>	<i>Moderately Developed</i>	<i>Substantially Developed</i>
Does not surface the assumptions and ethical issues that underlie the issue, or does so superficially.	Identifies some but not all of the assumptions that have been made in their analysis. Only superficially considers the validity of those assumptions.	Identifies the assumptions made in the analysis and considers their validity, yet fails to surface important ethical issues.	Identifies and questions the validity of the assumptions and addresses the ethical dimensions that underlie the issue.

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5) Identifies and assesses the quality of supporting data/evidence and provides additional data/evidence related to the issue.			
<i>Scant</i>	<i>Minimally Developed</i>	<i>Moderately Developed</i>	<i>Substantially Developed</i>
<p>Merely repeats information provided, taking it as truth, or denies evidence without adequate justification. Confuses associations and correlations with cause and effect.</p> <p>Does not distinguish between fact, opinion, and value judgments.</p> <p>Does not identify sources or uses inappropriate sources.</p>	<p>Provides significant supporting evidence only the student's own perspective. Evidence for other perspectives is minimal.</p> <p>Does not examine the evidence for bias or incompleteness.</p> <p>Does not recognize value judgments.</p> <p>Identifies sources but has some questionable sources.</p>	<p>Provides significant evidence for multiple perspectives. Questions accuracy and completeness. Of some evidence, but not all.</p> <p>May have some problems with cause and effect.</p> <p>May fail to properly identify some opinions and value judgments.</p> <p>Uses and cites appropriate sources.</p>	<p>Provides significant evidence for multiple perspectives. Examines the evidence and source of evidence; questions its accuracy, precision, relevance, completeness.</p> <p>Correctly identifies cause and effect.</p> <p>Clearly distinguishes between fact, opinion, & acknowledges value judgments.</p>
6) Identifies and considers the influence of the context * on the issue.			
<i>Scant</i>	<i>Minimally Developed</i>	<i>Moderately Developed</i>	<i>Substantially Developed</i>
<p>Discusses the problem from the perspective of a single discipline.</p> <p>Does not present the problem as having connections to other contexts-cultural, political, etc.</p>	<p>Recognizes the importance of issues such as political and economic feasibility their question, but does not discuss their impact.</p>	<p>Analyzes the issue considering relevant contexts outside of science, but fails to consider one important context.</p>	<p>Analyzes the issue with a clear sense of scope and context, including an assessment of the audience of the analysis.</p> <p>Fully considers other pertinent contexts such as political, economic, and social.</p>
7) Identifies and assesses conclusions, implications and consequences			
<i>Scant</i>	<i>Minimally Developed</i>	<i>Moderately Developed</i>	<i>Substantially Developed</i>
<p>Fails to identify conclusions, implications, and consequences of the issue or the key relationships between the other elements of the problem, such as context, implications, assumptions, or data and evidence.</p> <p>Fails to reflect upon their own work.</p>	<p>Draws incomplete conclusions or considers only some of the consequences of the conclusions.</p> <p>Fails to reconsider assumptions identified earlier.</p> <p>Fails to reflect upon their own work.</p>	<p>Draws appropriate conclusions from evidence/data. Identifies and discusses some, but not all, consequences of these conclusions.</p> <p>Fails to consider the limitations of their own work.</p> <p>Identifies some directions for further inquiry.</p>	<p>Identifies and discusses conclusions, implications, and consequences considering context, assumptions, data, and evidence.</p> <p>Objectively reflects upon their own assertions. Acknowledges the value judgments on which their position is based.</p> <p>Identifies appropriate directions for further inquiry.</p>

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