

## Critical Reasoning

**GOAL: Students apply a rational approach to problem solving based on evidence and reasoning skills.**

OBJECTIVES: Students will be able to...	OUTCOMES	RUBRIC			
		Does Not Meet Standard	Partially Meets Standard	Meets Standard	N/A
<b>1. Conceptualize Ideas</b>	<b>1.1 Student formulates a question that guides their research or problem solving.</b>	Student demonstrates little ability to generate their own questions or guide their own research.	Student can form questions, but they may be too open-ended or unstructured to lead to successful research or problem solving.	Student can frame a question or problem so that it leads to purposeful research or problem solving.	
	<b>1.2 Student develops a knowledge base through observation or study.</b>	Student demonstrates few, if any, effective study skills and needs substantial training in the tools of knowledge acquisition.	Student demonstrates some study skills but has difficulty organizing and retaining knowledge.	Student demonstrates effective study skills and the ability to absorb, organize and retain knowledge.	
<b>2. Analyze Problems</b>	<b>2.1 Student infers conclusions using data and evidence from a variety of sources.</b>	Student has difficulty drawing conclusions from available evidence or data.	Student can draw conclusions but tends to use faulty reasoning with logical inconsistencies.	Student can draw meaningful conclusions from observations and data using inductive reasoning skills.	
	<b>2.2 Student uses deductive reasoning to find logical solutions.</b>	Student exhibits little to no skill in deductive reasoning.	Student makes frequent errors in logic but demonstrates an understanding of logic.	Student can follow a sequence of logical rules to arrive at a solution.	
	<b>2.3 Student finds solutions to problems using quantitative skills.</b>	Student exhibits little to no mathematical literacy or ability to make calculations.	Student makes occasional calculation or mathematical errors but is developing an understanding.	Student can use calculations and/or mathematical reasoning to find solutions.	
<b>3. Test Solutions</b>	<b>3.1 Student performs experiments to test a hypothesis.</b>	Student has difficulty performing basic tasks of scientific experimentation.	Student requires significant assistance or correction in implementing an experimental test.	Student can apply the scientific method and empirical methods to test a hypothesis, utilizing the appropriate tools.	
	<b>3.2 Student tests a solution.</b>	Student is not able to plan or test a solution to a problem.	Student can develop a plan and implement it with assistance.	Student can independently plan and implement a solution and test its effectiveness.	

<b>4. Evaluate Results</b>	<b>4.1 Student critically examines results.</b>	Student is not able to judge results or draws the wrong conclusion from results.	Student attempts to critically examine results but sometimes draws the wrong conclusion.	Student can critically examine results and judge the success or failure of a solution.	
	<b>4.2 Student continuously makes improvement.</b>	Student is not able to find ways to improve.	Student sometimes uses results to find ways to improve.	Student can use results to determine ways to improve the solution or future results.	

*Last Revised: 7/20/21 by BL*

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