

Formulate and Solve Problems: Explore a situation, phenomenon, or question to define a problem; arrive at a hypothesis or set of alternative solutions; evaluate potential solutions; and come to well-reasoned conclusions.

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Defining the problem	Demonstrates little to no ability to define a manageable problem.	Defines a problem that while manageable, is too narrowly focused and leaves out relevant aspects of the subject or so broad that, while doable, cannot be adequately addressed.	Defines a focused and manageable/doable problem that appropriately addresses relevant aspects of the subject.	Identifies a creative, focused, and manageable problem that addresses potentially significant yet previously less-explored aspects of the subject.
Identifying strategies	Demonstrates little to no ability to identify an approach for solving the problem.	Identifies only a single approach for solving the problem that applies within the specific context.	Identifies multiple approaches for solving the problem, only some of which apply within the specific context.	Identifies multiple approaches for solving the problem that apply within the specific context.
Proposing solutions (or hypotheses or interpretations)	Demonstrates little to no ability to propose a solution related to the problem.	Proposes one solution that is “off the shelf” rather than individually designed to address the specific contextual factors of the problem.	Proposes one or more solutions that indicate comprehension of the problem. Solutions are sensitive to contextual factors as well as one of the following: ethical, logical, or cultural dimensions of the problem.	Proposes one or more solutions that indicate a deep comprehension of problem. Solutions are sensitive to contextual factors as well as all of the following as relevant: ethical, logical, and cultural dimensions of the problem.
Evaluating potential solutions	Evaluation of solution(s) is superficial (for example, contains cursory, surface level explanation) and incomplete, lacking many of the following: considers history of problems, reviews logic/reasoning, examines feasibility of solutions, reflects on ethical implications, and weighs impact of solutions.	Evaluation of solution(s) is brief (for example explanation lacks depth), perhaps noticeably lacking one or more of the following: considers history of problem, reviews logic/reasoning, examines feasibility of solution, reflects on ethical implications, and weighs impacts of solution.	Evaluation of solution(s) is adequate (for example contains thorough explanation) and includes the following: considers history of problem, reviews logic/reasoning, examines feasibility of solution, reflects on ethical implications, and weighs impacts of solution.	Evaluation of solution(s) is deep and elegant (for example contains thorough and insightful explanation) includes, deeply and thoroughly, all of the following: considers history of problem, reviews logic/reasoning, examines feasibility of solution, reflects on ethical implications, and weighs impacts of solution.
Implementing a solution	Implements the solution in a manner that does not directly address the problem statement.	Implements the solution in a manner that addresses the problem statement but ignores relevant contextual factors.	Implements the solution in a manner that addresses multiple contextual factors of the problem in a surface manner.	Implements the solution in a manner that addresses thoroughly and deeply multiple contextual factors of the problem.
Evaluating outcomes	Fails to review results in terms of the problem defined.	Reviews results superficially in terms of the problem defined with no consideration of need for further work.	Reviews results relative to the problem defined with some consideration of need for further work.	Reviews results relative to the problem defined with thorough, specific considerations of need for further work.