



2. CRITICAL THINKING & CREATIVE PROBLEM-SOLVING

Exercise sound reasoning to analyze issues, make decisions, identify problems and use good judgment to implement solutions and overcome problems. The individual is able to obtain, interpret, and use knowledge, facts, and data in this process, and may demonstrate originality and inventiveness.



	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6
2.1 Analyze issues in various contexts	<p>I can learn about a problem in my community.</p> <p>With guidance, I can share my opinion about the problem/issue.</p> <p>I can ask questions about the problem to help me understand it better.</p>	<p>I can learn more about an issue in my community, including why it happens and who or what is impacted by it.</p> <p><i>With guidance,</i> I can express my opinion about the issue and conduct research to help me better understand the issue.</p> <p>I can make connections between the issue and my own experience or knowledge.</p>	<p>I can analyze an issue to determine its causes and effects, the surrounding factors that shape the issue, and the experiences and/or needs of the people involved.</p> <p>I can explain my own perspective on the issue, and I can conduct research to help me better understand.</p> <p>I can make connections between the issue and my own experiences and other issues or examples I have learned about.</p>	<p>I can analyze an issue and contextual factors to determine its root causes and significant effects, connect it to other local, national, and/or global issues, and understand the experiences, needs, and/or goals of the main stakeholders.</p> <p>I can explain my perspective on the issue, identify my own biases and/or limitations in understanding or knowledge, and I can conduct further research to address these gaps.</p> <p>I can draw on my existing knowledge to make connections between an issue and my own experiences, other issues or systems, and/or concepts I have learned about.</p>	<p>I can analyze an issue to determine its root causes and most important effects, accurately situate it within existing local, national, and/or global systems, and understand the experiences, needs, goals, and interests or motivations of the main stakeholders.</p> <p>I can explain my perspective on the issue, identify my own assumptions, biases and/or limitations in understanding or knowledge, and I can conduct further research to address these gaps and to expand or evolve my point of view.</p> <p>I can draw on my existing knowledge to make connections between an issue and my own experiences, other issues or systems, concepts, and/or theories.</p>	<p>I can analyze an issue to determine its root causes and most important effects, accurately situate it within existing local, national, global, and/or theoretical systems, and understand the experiences, needs, goals, and interests or motivations of all stakeholders.</p> <p>I can explain my perspective on the issue, identify my own assumptions, biases and/or limitations in understanding or knowledge, and I can conduct further research and/or original research to address these gaps and to expand or evolve my point of view.</p> <p>I can accurately contextualize an issue within my own schema of experiences, knowledge of other issues or systems, concepts, and/or theories.</p>
2.2 Solve mathematical problems <small>critical thinking & creative problem-solving continued on next page >></small>	<p>I can say what the problem is in my own words.</p> <p><i>With guidance,</i> I can draw it or picture it in my mind.</p> <p>I can state my answer to the problem, and show the steps that I took to come to my answer.</p>	<p>I can rephrase the problem in my own words, and organize the information given to help me find a way to solve the problem.</p> <p><i>With guidance,</i> I can choose and apply at least one strategy (i.e., Math Habits of Mind: visualize, question, experiment, identify patterns, tinker, conjecture) to begin testing out a solution.</p> <p>I can determine if my answer does or does not make sense.</p> <p>I can state my answer to the problem using correct notation, and I can explain how I solved the problem.</p>	<p>I can organize the important information in a way that helps me better understand the information provided, ask questions, and identify a starting point for solving it.</p> <p>I can choose and apply one strategy to build a solution, and test my solution to make sure it is correct.</p> <p>I can check that my solution is reasonable and free from computational errors.</p> <p>I can state my answer to the problem using correct mathematical notation.</p> <p>I can discuss my solution pathway orally or in writing.</p>	<p>I can organize the important information effectively, using tools when helpful, and identify one or more approaches to solving the problem.</p> <p>I can apply one or more strategies to build a solution and test my solution using multiple numerical cases.</p> <p>I can make any needed corrections so that my solution is reasonable and free from computational errors.</p> <p>I can state my solution to the problem in narrative and/or visual form using correct mathematical notation.</p> <p>I can present my solution pathway and use feedback from others to make improvements, when applicable.</p>	<p>I can choose methods and tools (e.g. graphic calculator, spreadsheet, software) to efficiently organize information and identify one or more approaches to solving.</p> <p>I can apply one or more strategy to build a solution, and test my solution in multiple ways to confirm the validity and precision of my approach (including that I have attended to the meaning of quantities).</p> <p>I can make any needed corrections so that my solution is reasonable and free from computational errors.</p> <p>I can state my solution to the problem in narrative form using mathematical language and proper mathematical notation.</p> <p>I can present my solution and use feedback from others to make improvements, when applicable.</p>	<p>I can choose advanced methods and tools to efficiently organize information and identify multiple approaches to solving, including approaches from new perspectives.</p> <p>I can devise a novel approach to solving a problem, such as by experimenting with known approaches, and test my solution in multiple ways to confirm the validity and precision of my approach.</p> <p>I can make any needed corrections so that my solution is reasonable and free from computational errors.</p> <p>I can state a correct and/or high quality solution to the problem in narrative form using mathematical language and proper mathematical notation.</p> <p>I can present my solution and collaborate with others to improve or refine my approach.</p>



2. CRITICAL THINKING & CREATIVE PROBLEM-SOLVING (Cont.)



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	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6
2.3 Design and test solutions	<p>Working with others, I can notice when something around me isn't working right, and we can brainstorm what to do about it.</p> <p>Working with others, I can try a solution to a problem and say how well it worked.</p>	<p>I can identify a problem that I can try to solve.</p> <p>I can brainstorm several solutions to the problem and select one to try.</p> <p><i>With guidance</i>, I can build a prototype/model.</p>	<p>I can research and describe a problem, including any constraints that I must keep in mind.</p> <p><i>With guidance</i>, I can define success criteria.</p> <p>I can brainstorm multiple solutions to the problem, including solutions that take an original approach, and select one or two to move forward.</p> <p>I can build a prototype/model that meet my success criteria, including any constraints.</p>	<p>I can articulate a research-based problem statement that defines the problem and includes key constraints and parameters, and I can use it to define success criteria.</p> <p>I can use divergent thinking processes to generate a range of solutions, including solutions that take an original approach, to the problem and select one or two to move forward.</p> <p>I can build a prototype/model that meets my success criteria and follow the design constraints and parameters.</p> <p>I can iterate to eliminate at least one significant flaw and major limitation.</p>	<p>I can articulate a concise, research-based problem statement that defines the problem and includes any relevant constraints and parameters, and I can use it to define success criteria.</p> <p>I can use divergent thinking processes to generate multiple, varied, and creative solutions to the problem and apply my success criteria and parameters to select one or two to move forward.</p> <p>I can build one or more prototypes/models that meet my success criteria and follow all design constraints and parameters.</p> <p>Through testing and modification, I can eliminate significant flaws and major limitations, and develop a feasible prototype that meets my criteria and design parameters.</p>	<p>I can articulate a concise, research-based problem statement that defines, or reframes, the problem in a novel way and includes complex, multi-dimensional constraints and parameters, and use it to define success criteria.</p> <p>I can use divergent thinking processes to generate multiple, varied, and creative solutions to the problem and apply my success criteria and parameters to select one or two to move forward that represent different approaches.</p> <p>I can build multiple prototypes/models that meet my success criteria, follow all constraints and parameters, and represent different ways to meet different user needs.</p> <p>Through testing and modification, I can eliminate significant flaws and major limitations, and develop a feasible prototype that meets my criteria and design parameters and is ready for beta testing or to be made public (e.g. manufacturing, publishing).</p>
2.4 Construct evidence-based arguments	<p>I can share my opinion on a topic, and share one or two reasons for my opinion.</p> <p><i>With guidance</i>, I can provide reasons or examples to back up my opinion.</p>	<p>I can form an opinion about a topic or issue, and provide at least one logical reason to support my argument.</p> <p>I can support each reason with relevant evidence from sources and/or from personal experience, and present my ideas in a logical order.</p>	<p>I can make an arguable claim about a topic or issue that is supported by multiple logical reasons and relevant evidence.</p> <p>I can support each reason with relevant evidence from credible sources.</p> <p>I can organize my ideas in a logical order based on my argument.</p> <p>I can briefly mention one or more counterclaims.</p>	<p>I can make an arguable claim about an important topic, theme, or issue in the world that is supported by multiple logical reasons and relevant evidence.</p> <p>I can support each reason with clear explanations while citing multiple pieces of relevant evidence from credible sources, tailored to my specific audience.</p> <p>I can present my ideas succinctly, and in a logical order that tightly adheres to my argument.</p> <p>I can use evidence to refute or disprove one or more counterclaims.</p>	<p>I can present a cohesive argument about an important topic, theme, or issue in the world that is supported by multiple logical reasons and relevant evidence.</p> <p>I can support each reason with clear and compelling explanations that integrate the most relevant, important, and convincing details or evidence from credible and varied sources, tailored to my specific audience.</p> <p>I can present my ideas succinctly, and in a logical order that tightly adheres to my argument.</p> <p>I can fairly and thoroughly develop and refute counterclaims.</p>	<p>Drawing on diverse sources and original insight, I can create a cohesive argument about an important topic, theme, or issue in the world that is supported by multiple logical reasons and relevant evidence, and that contributes to, or advances, the field or discipline.</p> <p>I can support each reason/idea with clear and compelling explanations that integrate the most relevant, important, and convincing evidence from credible and varied sources, tailored to my specific audience.</p> <p>I can attend to the knowledge level, concerns, values, and/or possible biases of my audience throughout my argument.</p> <p>I can fairly and thoroughly develop and refute counterclaims, using evidence and logic to critique their strengths and limitations (e.g., reasons, sources, supporting evidence).</p>