










## [APS Critical and Creative Thinking Framework](#) Strategies Defined






### ***Why Teach Critical and Creative Thinking Strategies?***

In the article “[Preparing Creative and Critical Thinkers](#),” [Donald J. Treffinger](#) states that educators “must empower students to become creative thinkers, critical thinkers, and problem solvers—people who are continually learning and who can apply their new knowledge to complex, novel, open-ended challenges; people who will proceed confidently and competently into the new horizons of life and work.”<sup>1</sup>

In an effort to put our youngest learners on such a path and continue throughout their education, [Gifted Services APS Critical and Creative Thinking Framework](#) critical and creative thinking lessons designed for students in grades K-12. These lessons develop students’ abilities to think abstractly, see numerous relationships, make generalizations, and work at varying levels of complexity. Each lesson focuses on a specific thinking strategy that can be used at any grade level and across the content areas.

<p><b>Analogies</b></p> 	<p>The use of analogies nurtures originality, sharpens students’ powers of observation, and promotes divergent and analytical thinking. <a href="#">Analogies</a> are appropriate for all grade levels and can be applied to all content areas. Students can improve vocabulary usage and problem solving skills as well as observe unique perspectives and points-of view by comparing two or more items to perceive similarities and differences.</p>
<p><b>Big Ideas</b></p> 	<p>When we explore concept-based instruction, we are able to connect learning across a variety of subjects and topics. We fold new knowledge into prior knowledge. Concept-based instruction helps us explore big ideas that exist in the world, such as cause and effect, time, change, power, systems, or patterns.</p>

 <h2>Encapsulation</h2>	<p>In order to communicate in a clear and concise manner, we often need to encapsulate our thinking. This is a skill that helps us organize our thinking by focusing on main ideas and/or keywords.</p>
	<p><b>Fluency, Flexibility, Originality, Elaboration (FFOE)</b>        These thinking strategies and processes help students brainstorm, make connections, and develop creative ideas.</p> <ul style="list-style-type: none"> <li>● <b>Fluency</b> – The ability to generate numerous ideas or alternatives to solve a problem that requires a novel solution.</li> <li>● <b>Flexibility</b> – The ability to consider a number of different perspectives in an effort to generate a wide variety of ideas or alternatives.</li> <li>● <b>Originality</b> – The ability to generate novel, unique, and rare ideas or alternatives to solve a problem that requires an innovative solution.</li> <li>● <b>Elaboration</b> – The ability to generate a large number of details or descriptions that explain a specific and novel solution to a problem.</li> </ul>
 	<p>The <a href="#">16 Habits of Mind</a> were identified by Dr. Bena Kallick and Dr. Arthur Costa in their research into how people successfully face challenges. They describe a Habit of Mind as “having a disposition toward behaving intelligently when confronted with problems, the answers to which are not immediately known.”</p>
<h2>Making Connections</h2> 	<p>When learners make connections, they explore relationships between new ideas, their daily lives, and the world around them. Making connections supports learners in their ability to create unique and original ideas.</p>
<h2>Mind Mapping</h2> 	<p><a href="#">Tony Buzan</a>, the inventor of the <a href="#">Mind Mapping</a>, describes a <a href="#">Mind Map</a> as “a powerful graphic technique which provides a universal key to unlock the potential of the brain. It harnesses the full range of cortical skills – word, image, number, logic, rhythm, colour and spatial awareness – in a single, uniquely powerful manner.”</p>
 <h2>Point of View</h2>	<p>When learners consider other <a href="#">points of view</a> or perspectives, they begin to develop their abilities to listen with understanding and empathy (one of Costa’s 16 Habits of Mind). Tasks that focus on point of view offer learners the opportunity to think flexibly, debate ideas respectfully, and consider “big picture” ideas.</p>

<p>P, M, I   I</p>	<p>Learners use the <a href="#">PMI</a> structure to keep an open-minded attitude and consider an issue from multiple perspectives. Younger learners may consider what would make a certain idea interesting (i.e. What if books were round?), older learners may use the “I” to consider implications.</p>
<p>Questioning </p>	<p>Effective questions can support learners’ efforts to explain, interpret, and apply what they know. Open-ended questions can increase interest and support the development of a range of critical and creative thinking skills.</p>
<p> RAFT</p>	<p>A RAFT is an activity that provides students with opportunities to create products for certain audiences, based on specific topics, in a defined format, from a particular point of view. RAFT stands for <b>R</b>ole – <b>A</b>udience – <b>F</b>ormat – <b>T</b>opic.</p>
<p> SCAMPER</p>	<p><b>S</b>ubstitute: To have a person or thing act or serve in the place of another. Who else? What else? Other places? Another other?</p> <p><b>C</b>ombine: To bring together, to unite. Combine what? Bring whom together? Combine purposes? Ideas? Materials?</p> <p><b>A</b>adjust: To adjust for the purpose of suiting a condition. Reshape? Tune-up? Tone-down? Accommodate? Agree?</p> <p><b>M</b>odify -or- <b>M</b>agnify -or- <b>M</b>inify: To alter, to change the form or quality. A different color, sound, motion, or form? Another shape, taste, or odor?</p> <ul style="list-style-type: none"> <li>● To enlarge, to make greater in form or quality. How to make something higher, stronger, thicker, or faster?</li> <li>● To make less, to minimize. How to make something smaller, lighter, slower, less frequent? How to shrink or reduce?</li> </ul> <p><b>P</b>ut To Other Uses: Use for purpose other than originally intended. New uses as it is? Other places to use it? Use when or how?</p> <p><b>E</b>liminate: To remove, simplify, omit, or get rid of a quality. What to cut out or weed out? Remove/simplify.</p> <p><b>R</b>reverse -or- <b>R</b>earrange: To place opposite or contrary. Flip 180° To turn what around? Upside down? Inside out? Change the order or sequence. Another pattern? Layout? Scheme? How can you regroup? Redistribute? Plan?</p>