

## How Cognitive Skills Relate to District of Columbia Learning Standards



### Reading:

| Cognitive Skill  | Application to MCAS Questions  | BrainWare Safari Exercises Developing the Skill  |
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| <p><b>Sustained Attention</b> – the ability to stay on task for a sustained period of time.</p>  | <p>Reading a passage for comprehension requires sustained attention. If attention is not sustained, parts of the passage may not be processed or understood.</p> | <p>Most BrainWare Safari exercises work on sustained attention, including <b><i>Iguana Lookout</i></b>, <b><i>Jungle Labyrinth</i></b>, <b><i>Rhythm Ribbet</i></b>, and <b><i>Slithering Symbols</i></b>.</p> |
| <p><b>Visual Sequential Memory</b> – the ability to recall a sequence of bits of information in the same order as originally received.</p>     | <p>“According to this article, why did Louisa May Alcott FIRST begin to keep a journal?”</p>   | <p><b><i>Arrow Point Bridge</i></b>, <b><i>Bear Shuffle</i></b>, <b><i>Rhythm Ribbet</i></b> and <b><i>Slithering Symbols</i></b> are exercises that work on visual sequential memory.</p>                     |
| <p><b>Conceptual Thinking</b> – the ability to recognize a collection of features that go together to create an idea or category of ideas.</p> | <p>After students are presented with two short poems, a question which asks, “What is the theme of both poems?”</p>  | <p><b><i>Ancient Logic and Reasoning</i></b> and <b><i>Llama Logic</i></b> help develop conceptual thinking skills.</p>  |

There are many cognitive skills involved in learning as well as being tested on what one has learned. This document provides examples of how the MCAS places demands on cognitive skills. This is not meant to provide a complete perspective on cognitive skills or a thorough analysis of the MCAS. These are simply examples for illustration. BrainWare Safari is a product of Learning Enhancement Corporation. It is a comprehensive program that develops 41 cognitive skills in a fun and entertaining video game format. For more information, contact Learning Enhancement Corporation at [www.BrainWareforYou.com](http://www.BrainWareforYou.com) or 877-BRAIN-10 (877-272-4610). Examples taken from MCAS released test items grades 4 and 5. \*Because DC’s learning standards are based on those from Massachusetts, MCAS test items are especially relevant (\*<http://www.k12.dc.us/DCPS/standards2005/g4.htm>).

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### Mathematics:

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|---|---|---|
| <p><b>Visualization</b> – the ability to recall an image of what has been seen and to mentally manipulate and change aspects of that image in the mind.</p> | <p>“The cube shown below was cut into three pieces. Which of the following groups could be the three pieces of the cube?”</p>   | <p>Most BrainWare Safari exercises develop visualization skills. Such exercises include <b>Cave Comparisons, Piranha Pass, Web Weaving, and Whispering Waterfall.</b></p> |
| <p><b>Oculomotor</b> – the ability to use the eyes efficiently to read and gather information from the environment.</p>                                     | <p>“The box-and-whisker plot below shows the starting salaries for graduates of a small college. What is the range of starting salaries?”</p>   | <p><b>Iguana Lookout, Jungle Labyrinth, Piranha Pass, Sky Scanning</b> and <b>Turtle Recall</b> address oculomotor skills.</p>  |
| <p><b>Working Memory</b> – the ability to hold information in the mind while performing a mental operation on it.</p>                                       | <p>“Allan and Marie drove a total of 3184 miles in 8 days. They drove the same number of miles each day. Which of the following is closest to the number of miles they drove each day?”</p> | <p><b>Bear Shuffle, Cave Comparisons, Memory Mountain</b> and <b>Tree Tic-Tac-Toe</b> are among the exercises that improve working memory skills.</p>                     |

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### Science:

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| <b>Visual Discrimination</b> – the ability to distinguish differences.                           | “Which bird’s foot shown below is <b>best</b> for grasping prey?”  | BrainWare Safari exercises that develop visual discrimination include <b>Cave Comparisons, Jumping Jaguar Flash, Sky Scanning</b> and <b>Volcanic Patterns</b> . |
| <b>Reasoning</b> – the ability to form concepts and solve problems using unfamiliar information. | “An earthworm was placed on top of a thick layer of moist topsoil in a pan. The pan was placed in a room with the lights on. How did the earthworm most likely respond to these conditions?” | <b>Ancient Logic and Reasoning</b> and <b>Piranha Pass</b> are two of the exercises that develop reasoning skills.   |
| <b>Logic</b> – the ability to reason and think rationally and analytically.                      | “What is the main advantage of making a laptop computer light in weight?”  | <b>Llama Logic</b> and <b>Tree Tic-Tac-Toe</b> are two of the exercises that develop logic skills.   |

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