

Table 5. Cognitive Abilities and Equipping Minds Cognitive Training Intervention

Cognitive Ability	Implications for Academics	Goals	Equipping Minds Cognitive Training Intervention
<p>Comprehension-Knowledge (Gc) Verbal/Crystallized Intelligence The ability to communicate one’s knowledge of word meanings, factual information, comprehension, concepts, rules, and relationships. The ability to reason using previous learned experiences, procedures, and knowledge obtained through one’s life experiences, school, and work.</p>	<p>Highly predictive of academic success. Strong and consistent relationship to reading, writing, and math throughout school: learning vocabulary, answering factual questions, comprehending oral/written language.</p>	<p>*Increase comprehension, retain information, understand relationships, and reason. *Visualize, retain, and express what they hear and read.</p>	<p><u>Exercises to increase comprehension, retain information, understand relationships, and reason:</u> *Follow Aristotle’s Ten Categories of Being: what/who, quantities (numerical value), qualities (size, color, shape), action, time, where, relationships, feelings, position, clothing/accessories as your guide to discuss everything. Begin with a picture using the STARE Jr. cards, Yo, Millard Filmore president’s book. *Read short stories, Aesop’s fables, and ask questions base on the Ten Categories. *Recall the Stroop Animal directions from memory saying forward and backwards. *Build comprehension through vocabulary exercise</p>
<p>Cognitive Processing Speed (Gs) The ability to automatically and fluently perform cognitive tasks, particularly when measured under pressure to maintain focused attention. The ability to accurately</p>	<p>There is a significant impact to reading, writing, and math: completing assignments on time, processing information quickly, copying from the board, and taking timed test.</p>	<p>*Increase processing rate and fluency. *Increase Rapid Automatic Naming pictures, letters, numbers, colors, shapes. *Increase language processing by say what you’re doing when sorting the cards</p>	<p><u>Exercises to increase processing rate and fluency:</u> *Sort Blink cards, SET, or a deck of cards naming numbers, colors, and shapes/suit. *Sort Qwitch cards naming letters and numbers.</p>

<p>identify and quickly scan and discriminate visual information to make and implement decisions.</p>		<p>and reading the charts/pages. *Increase time when saying what you're doing when reading a page of numbers, vowels, letters, colors, directions, shapes, animals. *Increase hand-eye coordination sorting</p>	<p>*Read Animal Set 1, Direction Set 1, and Number Set 1 of Stroop Effect. *Read the colors of the arrows and then the directions. *Read Number Hunt 1-5 and 1-9 numbers.</p>
<p>Auditory Processing (Ga) The ability to perceive, analyze, manipulate, compare, discriminate, and synthesize patterns among auditory stimuli (speech sounds). The ability to employ auditory information in task performance. It includes phonological awareness, processing, sensitivity, and coding.</p>	<p>There is a significant relationship to reading, writing, and spelling: acquiring phonics, sequencing sounds, listening, learning a foreign language, musical skill. A weakness in phonological processing and awareness is a common factor among learners with reading challenges.</p>	<p>*Increase phonemic awareness. *Increase ability to retain and manipulate speech sounds.</p>	<p><u>Exercises to increase phonemic awareness and auditory processing:</u> *Read the vowels and say the sounds in Vowel Hunt. Use a phonics phone when learning the sounds. Teacher should speak directly into the learner's right ear. *Read the letters and say the sounds Letter Fluency for A-I. *Read Letters (b,d,p,q,m,w) exercises to say the direction, letter name, and sound. *Sound therapy can be very beneficial for increasing auditory processing abilities.</p>
<p>Short-Term & Working Memory (Gwm) The ability to apprehend, hold, and manipulate visual and auditory information in immediate awareness while performing a mental operation on it. Requires attention, auditory and visual discrimination, and concentration.</p>	<p>There is a significant impact to reading, writing, and math: following multi-step directions, recalling sequences, memorizing information, listening and comprehending, taking notes, remembering math steps, holding letters and sounds in place for reading and spelling.</p>	<p>*Recall and complete three and four step directions. *Verbalize what he is doing when alternating a sequence of three and four qualities *Recall the Stroop Animals forward and backwards *Recall numbers from memory forwards and backwards? 6-3-8-1, then 9,4,2,7,6. *Show 3 Blink cards.</p>	<p><u>Exercises to increase working memory and following multi-step directions:</u> *When giving directions, begin with "I see you... What do you see yourself doing?" *Blink/Cards: Alternate saying the number, color, and shape/suit. *Qwitch: Alternate saying =, +, -</p>

<p>Auditory Working Memory: The ability to hold auditory information in immediate awareness while performing a mental operation on the information.</p> <p>Visual Memory: The ability to hold visual information in immediate awareness while performing a mental operation on the information.</p>		<p>Turn them over and ask to recall. Then ask to recall 2 minutes later.</p> <p>*Verbalize a sequence of 4-9 items on the Brown <i>n</i>-back</p>	<p>*ALL Stroop Exercises: Sets 1 and 2.</p> <p>*Colored Arrows alternating number, color and direction.</p> <p>*Vowel and Number Hunt exercises: Begin with one direction and build on from there.</p> <p>*Use b, d, p, q, and other direction exercises</p> <p>*Brown 4-9 <i>n</i>-back sequence on Arrows, Number Hunt 1-5 and 1-9, Vowels and Letter Fluency</p> <p>Auditory and Visual Working Memory</p> <p>*Find It, Write it, & Say it: Use any list & build on it daily. Do not progress without mastery, and don't add too much too fast.</p> <p>*Say 2-4-7, /2-4-7-3; and 5-1-6-9, / 5-1-6-9-2</p> <p>*Xtreme Memory with linking cubes, letters, numbers, and symbols</p> <p>*Xtreme Tic Toe</p> <p>*Visual and Auditory Recall</p> <p>*Stare Cards: Ten Categories</p> <p>*Presidents</p>
<p>Long-Term Memory (Glr) The ability to store information (ideas, names, concepts) in one's mind and fluently retrieve it later in the process of thinking. Retrieval should be done easily, quickly, and using association.</p>	<p>There is a significant relationship to reading, writing, and math, especially during basic skill acquisition of learning numbers, letters, colors, shapes, sounds, and animals. Organization and classification of information is needed to make recall</p>	<p>*Increase the number of items the learner can recall.</p> <p>*Name as many animals or any category as fast as you can in 1 minute.</p> <p>*Learn the presidents and recall forwards and backwards</p> <p>*Categorize animals and other categories</p>	<p><u>Exercises to Increase long term memory retrieval:</u></p> <p>*Play Make a List. Name as many animals as you can in 1 minute. Use any category in which you have information in your long-term memory and recall.</p> <p>*Recall and Categorize the items</p>

	possible.		in Make a List, Spot It cards, Stroop Animals *Finger exercises for the Palmer reflex daily. *Recall stories you have heard and pictures you have seen over a 1-month period. *Recall the Presidents full name, number, and picture from <i>Yo Millard Fillmore</i> .
Fluid Reasoning (Gf) The type of thinking an individual may use when faced with a relatively new task that cannot be performed automatically. The ability to reason, form concepts, detect underlying relationships and rules among objects to solve problems.	Significant relationship to higher level skills in reading, writing, and math; problem solving, drawing inferences, cognitive flexibility, transferring and generalizing, thinking conceptually.	*Apply problem solving strategies and procedures. *Verbalize the thought process when playing Set, Color Code, Blink, Tic Tac Toe, Perplexors, and Critical Thinking exercises.	<u>Exercises to increase fluid reasoning</u> *Color Code *Blink Game *SET *Xtreme Tic Tac Toe *Perplexor Puzzles *Critical Thinking K-3 and 4-7 with verbalization
Visual Processing (Gv) The ability to perceive, analyze, and synthesize visual patterns, including the ability to store and recall visual images. Visual Spatial Reasoning The ability to evaluate visual details and to understand visual spatial relationships to construction geometric designs from a model.	There is a significant relationship to reading, writing, and math, especially during basic skill acquisition of learning numbers, letters, colors, shapes, sounds, and animals. Organization and classification of information is needed to make recall possible.	*Read letters, numbers, and words without skipping lines *Read letters, numbers, and words fluidly and calmly *Verbalize his thought process when playing Color Code	<u>Exercises to increase visual processing and visual spatial reasoning:</u> *Color Code *Xtreme Memory *Xtreme Tic Tac Toe *Tangrams