

KABC-II, WISC-5 KTEA-3 & MISC TEST SCORES
CHC ABILITIES ASSOCIATED WITH AREAS OF ACADEMIC ACHIEVEMENT

	Gf	Gc	Gwm	Gv	Ga	Glr	Gs
Reading	I, RG	LD, VL, LS, KO	MS, MW	Ortho Proc. VZ	PC	NA, MA	P
Math	I, RG	LD, VL, LS	MS, MW	VZ	---	NA, MA	P
Written Expression	I, RG	LD, VL, KO	MS	Ortho Proc.	PC	NA	P

CLUSTER SCORE	SUB TEST SCORE KABC-II	SUB TEST SCORES WISC-V	MISC SUB TESTS
CRYSTALIZED INTELLIGENCE (GC –VL,LD,LS,KO)	Riddles (VL) Verbal Know. (VL, K0) <i>Expressive Vocab. (VL)</i>	WISC-V Vocabulary (Gc:VL) WISC-V Information (Gc:K0) WISC-V Similarities (Gc:VL;Gf:I) WISC-V Comprehension (Gc:KO)	KTEA-3 Listening Comprehension (Gc:LS) CELF- 4 (Age 9-12)Sentence Assembly (Gc:LD) CELF-Pre2 (Age 4-6) Word Class (Recp. Exp. Total) (Gf:LD,VL;Gf:I)
FLUID REASONING (Gf – I, RG)	Pattern Reasoning (I) Story Completion (RG)	WISC-V Figure Weights (Gf:RG) WISC-V Matrix Reasoning (Gf:I) WISC-V Picture Concepts (Gf:I)	
AUDITORY PROCESSING (GA - PC)			KTEA-3 Phonological Processing (BRS;Ga:PC) CELF-4 (Age 5-12) Phonological Awareness(Ga:PC) NEPSY-II (Age 3-16) Phonological Processing (Ga:PC) WJ IV COG Phonological Processing (Ga:PC;Glr:FW) SCAN-3:A (Age13-50) Filtered Words(Ga:PC) SCAN-3:C (Age 5-12) Filtered Words (Ga:PC)
VISUAL PROCESSING (GV – VZ, Ortho Processing)	Block Counting (Vz) Triangles (Vz)	WISC-V Block Design (Gv:Vz) WISC-V Visual Puzzles (Gv:Vz)	Orthographic Processing WISC-V Naming Speed Literacy (Glr:NA) KTEA-3 Letter naming Facility (BRS,Glr:NA) KTEA-3 Word Recognition Fluency (RF:Gs:R9) KTEA-3 Spelling (WE)
LONG TERM STORAGE AND RETRIEVAL (GLR – MA, NA)	Atlantis (MA) Rebus (MA)	WISC-V Immediate Symbol Translation (Glr:MA) WISC-V Naming Speed Literacy (Glr:NA) WISC-V Delayed Symbol Translation (GLR:MA) WISC-V Recognition Symbol Translation(Glr:MA) WISC-V Naming Speed Letter-Number (Glr:NA)	
SHORT TERM MEMORY (GSM – MS, WM)	Word Order (MS, WM) Number Recall (MS) Hand Mvmts. (MS)	WISC-V Digit Span Forward (Gsm:MS) WISC-V Digit Span Backward (Gsm:MW) WISC-V Picture Span (Gsm:MS) WISC-V Digit Span Sequencing (Gsm:MW)	
PROCESSING SPEED (GS - P)		WISC-V Symbol Search (Gs:P) WISC-V Cancellation (Gs:P) WISC-V Cancellation Random (Gs:P) WISC-V Cancellation Structured (Gs:P)	

ACHIEVEMENT TEST STD. SCORES (KTEA-3)

	Std. Sc	Grd. Eq		Std. Sc	Grd. Eq
LETTER/WORD				MATH COMPUTATION	
WORD RECOGNITION				MATH CONCEPTS & APPLICATION	
READING COMPREHENSION				WRITTEN EXPRESSION	

Cattell-Horn-Carroll (CHC) Theory of Cognitive Abilities Definitions (v2.3 – Kevin S. McGrew)

Fluid reasoning (Gf): The use of deliberate and controlled focused attention to solve novel “on the spot” problems that cannot be solved solely by using prior knowledge (previously learned habits, schemas, or scripts). Reasoning that depends minimally on learning and acculturation.

- Induction (I):* The ability to infer general implicit principles or rules that govern the observed behavior of a phenomenon or the solution to a problem. Rule discovery.
- General sequential reasoning (RG):* The ability to reach logical conclusions from given premises and principles, often in a series of two or more sequential steps. Deductive reasoning.

Short-term working memory (Gwm): The ability to encode, maintain, and/or manipulate auditory or visual information in primary memory (while avoiding distractions) to solve multiple-step problems. The mind’s mental “scratchpad” or “workbench.”

- Memory span (MS): The ability to encode and maintain verbal information in primary memory and accurately reproduce the information in the originally presented sequence.
- Working memory capacity (WM): The capacity limitation for the amount of information that can be actively maintained, recoded or assembled into structures in primary memory.

Long-term storage and retrieval (Glr): The ability to learn, store, consolidate, and retrieve information over periods of time measured in minutes, hours, days, and years.

- Naming facility (NA): The ability to rapidly produce names for common objects.
- Associative memory (MA): The ability to encode and remember previously unrelated information after it has been paired. Paired-associate learning.

Processing speed (Gs): The ability to control attention to automatically and fluently perform relatively simple repetitive cognitive tasks. Attentional fluency.

- Perceptual speed (P): The speed and fluency with which similarities or differences in visual stimuli (e.g., letters, numbers, patterns, etc.) can be compared and distinguished. Carroll (1993) also listed this ability under Gv.

Comprehension-knowledge (Gc): The depth and breadth of declarative and procedural knowledge and skills valued by one’s culture. Comprehension of language, words, and general knowledge developed through experience, learning and acculturation.

- General (verbal) information (K0): The breadth and depth of knowledge that one’s culture deems essential, practical, or worthwhile for most everyone to know.
- Language development (LD): The general understanding of spoken language at the level of words, idioms, and sentences. An intermediate factor between broad Gc and other narrow Gc abilities. It usually represents a number of narrow language abilities working together in concert—therefore it is not likely a unique ability.
- Lexical knowledge (VL): The knowledge of the word definitions and the concepts that underlie them. Vocabulary knowledge.
- Listening ability (LS): The ability to understand speech, starting with comprehending single words and increasing to long complex verbal statements.

Auditory processing (Ga): The ability to perceive, discriminate, and manipulate sounds and information received through the ears. Includes the processing of auditory information in primary memory and/or the activation, restructuring, or retrieval of information from semantic-lexical memory based on phonemes.

- Phonetic coding (PC): The ability to distinctly hear phonemes, blend sounds into words, and segment words into parts, sounds, or phonemes.

Visual-spatial processing (Gv): The ability to use mental imagery, store images in primary memory, or perform visual-spatial analysis or mental transformation of images in the “mind’s eye.”

- Visualization (Vz): The ability to perceive complex 2-D or 3-D visual patterns and mentally simulate their transformation (e.g., rotate, change size, etc.).
- Orthographic processing is the interpretation of abstract representations (series of letters that form words) during the process of reading. Orthographic processing is most closely related to sight word reading where the individual does not use decoding strategies to read words but, rather, know the entire word “on sight.” May cause handwriting spelling and/or composition problems <http://www.pps.net/cms/lib8/OR01913224/Centricity/Domain/178/PSW%20Research%20References.pdf>

<http://www.iapsych.com/chcdefsbrief.pdf>**Note:** These are abridged and adapted definitions first published in McGrew (1997).¹ They were subsequently refined by McGrew (2005, 2009), Schneider & McGrew (2012) and McGrew, LaForte & Schrank (2014). More complete definitions can be found in McGrew et al. (2014) and at: www.iqscorner.com/2014/06/the-chc-taxonomy-of-human-cognitive.html

RECOMMENDATIONS THAT MAY FACILITATE LEARNING AND AID IN BYPASSING OR MINIMIZING THE EFFECTS OF A DEFICIT COGNITIVE AREA

ADAPTED FROM ESSENTIALS OF PLANNING SELECTING AND TAYLORING INTERVENTIONS FOR UNIQUE LEARNERS MASCOLO, ALFONSO, FLANNAGAN RAPID REFERENCE 1.20

Gf	
Use demonstrations to externalize the reasoning process (think-alouds)	
Expanded answer keys containing the “reason” for correct/incorrect choices	
Problem-solving charts (hanging or taped to desk)	
Use metacognitive strategies (mnemonics that are memorable and that accurately represent the learning task)	
Gradually offer guided practice (e.g., guided questions list) to promote internalization of procedures or process(es)	
Guided lists for implementing procedures, formulas	
Procedural charts/lists (hanging or taped to desk)	
Use tools that help them categorizes objects and concepts to assist in drawing conclusions (e.g., graphic organizers, concept maps)	
Offer targeted, explicit feedback	
Models/examples	
Preferred seating arrangements that provide easy access to a peer model with strong reasoning skills (e.g., for cooperative learning activities)	
Listen to and separate the steps in completing a problem from the actual content used in a problem	
Offer opportunities for learning formats that allow for reasoning to be modeled for the student (e. g., cooperative learning, reciprocal teaching)	
Text features (boldface, italics)	
Compare new concepts to previously learned concepts (same vs. different)	
Graphic organizers that allow for a visual depiction of relationships between and among concepts	
Use analogies, similes, metaphors, paired with concrete explanations, to support understanding when presenting tasks (e.g., “We are going to learn our math facts with lightning speed, that means we are going to learn them fast”)	
Manipulatives to demonstrate relationships (e.g., part to whole relationships)	

Gc	
Provides an environment rich in language and experiences	
Contains chapter Glossaries	
Word-of-the-day calendar	
Use KWL strategy to increase background knowledge	
Incorporates frequent practice with and exposure to words	
E-Glossaries available	
Word walls	
Use context when reading to ascertain meaning	
Reads aloud to children	
Provides vocabulary building activities (print or online)	
Capitalize on opportunities to practice new words (listening for their use in television shows and other media, purposely using them in conversation)	
Varies reading purpose (leisure, information)	
Contains tools for priming background knowledge (e.g., Harcourt)	
Distraction-free seating	
Engage in activities such as word searches containing related terms (e.g., travel terms) and crosswords (note: puzzlemaker.com can create customized puzzles)	
Works on vocabulary building Includes story starters	
Closed doors Write a new word and its definition along with a drawing	
Teaches morphology Includes text features (boldface, italics)	
Closed windows	

Capitalizes on opportunities to define words within instruction (e.g., “the composition of igneous rock, that is, what it is made of, is. . .”)	
Includes supportive modalities (e.g., visuals, gestures) to increase understanding of language used	
Audio glossaries	
Embeds instruction within a meaningful context (e.g., relating words to learner experiences, increasing listening ability through game-like format)	
Dictionaries	
Develops vocabulary through naturalistic extension of language (e.g., if a student asks, “Can I start my work,” the teacher might respond, “Yes, you can begin your work,” naturally building synonym knowledge)	
Thesaurus	
Encyclopedias	
Use vocabulary cartoons (Burchers, 2000)	
Use text talks	
Uses extension and expansion strategies (Mather, Lynch, & Richards, 2001)	

Ga	
Enunciates sounds in words in an emphatic manner when teaching new words for reading or spelling	
Video clips	
Rules for talking and listening	
Use comprehension monitoring (e.g., Does the word I heard/read make sense in context?)	
Uses instructional techniques (e.g., work preview/ text preview) to clarify unknown words	
Read aloud texts/features	
Spelling lists Engage in self-advocacy (e.g., asking for information to be repeated and/or clarified in regard to the misheard part)	
Provides instructional supports (e.g., guided notes) during note-taking activities	
Audio glossaries	
Closed doors	
Physically positioning oneself toward/ close to the speaker	
Builds in time for clarification questions related to “missed” or “misheard” items during lecture	
Supplement oral instructions with written instructions	
Closed windows	
Attending to speaker’s mouth and/or gestures, facial expressions, during the delivery of information	
Shortens instructions	
Phonemic awareness activities	
Distraction-free seating	
Recording notes via audio methods to allow a mechanism for being able to fill in notes for completeness	
Makes an effort to minimize background noise via the use of instructional commands (e.g., work quietly, refrain from talking with your neighbor)	
Electronic textbooks	
Noise minimizers (carpet, noise-reducing headphones)	
Following along with written directions/text during the provision of oral instruction	
Repeats or rephrases questions asked by other students to ensure that all students “hear” the question that is associated with the teacher’s given response	
Guided notes, graphic organizers	
Preferential seating (close to teacher, away from heaters, fans)	
Practicing spelling lists with visually based techniques	
Emphasizes sight-word reading	
Localize sound source for student by standing closer when delivering instructions	
Use visualization strategies to remember things	
Pauses when delivering oral instruction to allow time for student to process auditory information	
Use written mediums (e.g., email, text) to preserve content/integrity of information communicated	

Gv	
Provide oral explanation for visual concepts	
Video clips Color-coded Information	
Uses orthographic strategies for decoding (e.g., word length, shape of word);	
Uses “cover-copy-compare” technique —go to: http://www.amblesideprimary.com/ambleweb/lookcover/lookcover.html	
Reviews spatial concept and supports comprehension through use of hands-on activities and manipulatives (e.g., using models to demonstrate the moon’s orbital path).	
Enlarged text (via online zoom feature or alternative print copy of textbook, worksheet)	
Preferential seating aimed at allowing the student to access visual material (e.g., smart board) manipulatives, visual aids, and other materials to support learning	
Capitalizes on intact or strong auditory skills during learning/studying (e.g., uses phonemic skills for decoding tasks) Provides verbal label for visual representations (e.g., “The shaded red bars represent women’s votes, the green bars represent men’s votes”)	
Highlights margins during writing tasks	
Assigned note-taking buddy	
Pairs visual information with verbal (mnemonics)	
Provides written copies of oral instructions, lectures	
Provides direct handwriting practice	
Readers or scribes, where needed Labels visual charts/graphs with verbal labels	
Auditory cueing to supplement visual information/cues (e.g., “Look at the bar graph for weekly sales”)	
Provides visual supports (graphic organizers, graph paper)	
Provides graph-paper to assist with number alignment	
Alternative lighting (natural light, non-fluorescent lighting)	
Uses aids to support visual tracking (finger, index card, ruler)	
Books on tape Spaces items on a page	
Text-to-speech technology (screen and text readers)	
Uses applications or supports that allow for enlargement of fonts	
Reading/scanning pens	
Uses note-taking strategies (e.g., Cornell, outlining)	

Glr	
Uses close-ended questions, yes/ no, true/false	
Guided lists for implementing procedures, formulas	
Procedural charts	
Organizes material to be learned using visual aids (e. g., diagrams, flowcharts), auditory aids (e.g., chunking), or other tangibles (e.g., flash cards)	
Uses consistent instructional routines	
Practice guides	
Word walls	
Makes connections by relating material to be learned to oneself	
Offers repeated practice with and review of newly presented information	
Online review	
Desk organizers	
Relates concepts to be learned to one another via tools such as a concept map	
Teaches memory strategies and encourages their use (verbal rehearsal to support encoding, use of mnemonic devices; Dehn, 2010) Glossaries (electronic, audio, printed)	
External memory aids (lists, audible timers)	
Creates a schedule for distributed practice of material to be learned	

Uses multiple modalities when teaching new concepts (pair written or visual with verbal information) to support dual recoding (Dehn, 2010)	
Study guides	
Calendars with visual references to due dates	
Plans for regular review of material	
Limits the amount of new material to be learned; introduces new concepts gradually and with a lot of context	
Review sheets	
Visual reminders (Post-its, color-coded systems)	
Rehearses material to be learned via recitation, repetition s mindful of when new concepts are presented	
Dictionaries (to support word retrieval)	
Quiet environment or noise- reduction aids (headphones, cubicles, study carrels)	
Studies and completes homework in a designated location with necessary materials	
Makes associations between newly learned and prior information explicit	
Thesaurus (to build vocabulary and minimize impact of retrieval weaknesses)	
Preferential seating to minimize distractions when encoding	
Uses active learning strategies (note-taking, flash cards, concept maps, chunking) in review sessions	
Uses lists to facilitate recall (prompts)	
Studies and reviews learning material immediately prior to sleeping	
Expands vocabulary to minimize impact of word retrieval deficits	
Uses organizational strategies such as semantic clustering (Dehn, 2010)	
Builds in wait-time for student when fluency of retrieval is an issue	
Uses verbal association strategies (e.g., elaboration; Dehn, 2010)	
Uses text previews to “prime” knowledge	
Implements dual coding strategies (visual to verbal and vice versa)	
Provides background knowledge first before asking a question to “prime” student for retrieval	
Engages in self-testing	
Uses specific strategies for academic tasks (e.g., PQRS, for reading comprehension; Dehn 2010)	

Gs	
Focuses on features of work products that are unrelated to time parameters (e.g., quality or accuracy of a response)	
Practice guides	
Clocks	
Plan for long-term projects by using a realistic schedule that allows for consistent movement toward completion	
Repeated practice	
Online review	
Written schedules	
Preview important parts of text (end-of-chapter questions, title, subtitles, glossary of terms) to facilitate reading speed	
Offers speed drills	
Desk organizers	
Apply planning and time management strategies	
Use computer activities that require quick, simple decisions	
Use techniques such as skimming and scanning for reading activities	
Extended time	
Books on tape	
Use an outlining strategy for note-taking	
Reduces the quantity of work required (including homework)	
Online activities/games (e.g., http://www .arcademicskillbuilders.com/ games/)	
Increases wait-times both after questions are asked and after responses are given	
Choral repeated reading	

Gs	
Offers repetition of information	
Practice guides	
Color-coded information	
Apply rote strategies (e.g., basic rehearsal, simple repetition) for information to be learned in the short-term	
Reviews information and newly presented concepts often	
Guided study Math-facts tables (e.g., multiplication)	
Encourage use of relational strategies (e.g., mnemonics)	
Delivers information in manageable parts	
Online review	
Written schedules	
Use elaborative rehearsal (associating new information with prior knowledge)	
Evidences use of consistent instructional routines	
Flash cards	
Visual schedules (e.g., pictures)	
Semantic rehearsal (creating a sentence using things to be remembered)	
Uses meaningful stimuli to assist with encoding and allow for experiential learning (i.e., learning while doing)	
Multisensory materials to facilitate encoding	
Written reminders (homework)	
Chunking	
Provides opportunities for repeated practice and review	
Paraphrasing	
Provides supports (e.g., lecture notes, guided notes, study guides, written directions) to supplement oral instruction	
Visual mnemonics (imagery, pegwords, loci, keyword method; Dehn, 2008)	
Breaks down instructional steps for student	
Chaining Provides visual support (e.g., times table) to support acquisition of basic math facts	
First-letter mnemonics	
Outlines math procedures for student and provides procedural guides or flashcards for the student to use when approaching problems	
Use tangible reminders (alarms, to-do lists, calendar schedules)	
Highlights important information within a word problem	
Apply specific academic strategies (e.g., write out all math computations, use a calculator, spellchecker)	
Has students write all steps and show all work for math computations	
Uses writing programs or techniques that emphasize drafting first (e.g., Draft Builder 6)	
Teaches chunking strategies	
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