

# Introducing the new



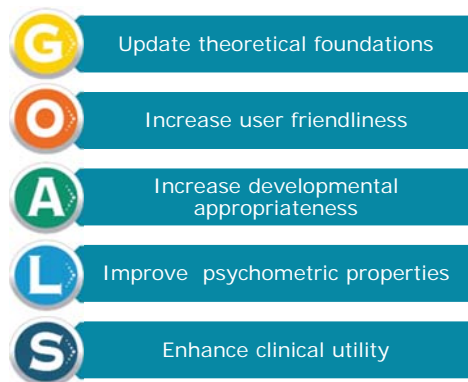
Presentation by  
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## WISC-5 Presentation *Agenda*

- Revision Highlights
  - Goals
  - Changes to Retained Subtests
  - New Subtests
  - New Test Structure
- Format options: paper or digital (Q-interactive)
- Administration guidance
- Scoring/Interpretation procedures
  - Including Q-Global) web based scoring
  - PSW analysis/Using results for LD Identification
- Q-I digital format overview

## WISC-V Revision Goals



## 1. Update Theoretical Foundations

- WISC-5-> Based on broad range of research on intelligence, cognitive development, neurodevelopment, cognitive neuroscience, and processes important to learning.
- This included contributions of structural intelligence models, neurodevelopmental and neurocognitive research, working memory models, empirical results from WISC-5 standardization, & clinical utility considerations
- Numerous structural models of intelligence
  - Cattell-Horn-Carroll [CHC]) most well known
  - Vernon's hierarchical model (Johnson & Bouchard, 2005a; 2005b; Johnson, te Nijenhuis, & Bouchard, 2007)

## 1. Update Theoretical Foundations

Structural intelligence models -

- Although evidence from structural models does not identically converge, most include as important components-- Verbal Comprehension, Visual Spatial, Fluid Reasoning, Working Memory, and Processing Speed abilities
- The Wechsler intelligence scales (Wechsler, 1991, 1997, 2002, 2003, 2008, 2012) have evolved in response, adding new measures of visual spatial ability, fluid reasoning, working memory, and processing speed.
- The WISC-V continues this work by providing new measures of visual spatial ability, fluid reasoning, and working memory; offering separate visual spatial and fluid reasoning composites; and improving upon the measure of verbal comprehension and processing speed while continuing to offer composite scores for each.

## 1. Update Theoretical Foundations

Additional Considerations in WISC-5 Development

- Neurodevelopmental and neurocognitive research (Lurian traditions, process approaches based on the work of Edith Kaplan, research pertaining to impacts of brain trauma on functioning/development – i.e., TBI )
- Working memory models and research (Baddley's work and others)
- Clinical neuropsychological assessment of individuals with impairment or change after an injury or an illness, specifically in relation to particular brain structures or pathways. (Maricle & Avirett, 2012; McCloskey, Whitaker, Murphy, & Rogers, 2012; Miller & Maricle, 2012).

## 1. Update Theoretical Foundations

- These theoretical considerations lead to the decision to increase breadth of construct coverage by developing:
  - visual spatial subtest
  - fluid reasoning subtest
  - visual working memory subtest
  - subtests to measure additional processes related to learning (naming facility, associative memory)
    - to measure additional cognitive processes relevant to learning disabilities

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## 2. Increase Developmental Appropriateness

- Instructions
  - Reduce vocabulary level, verbosity (tested on low functioning students)
    - “Advantages” and other high vocabulary level of items on Comprehension
  - Demonstrate, practice, and teach the task
- Replace outdated art and items with more current and relevant



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## 2. Increase Developmental Appropriateness for students

- reduced # of items with time bonuses
- reduced overall testing time

FSIQ 7 subtests; Primary Indices 10 subtests

WISC-IV (74 min)

**WISC-V** (48 min FSIQ, 65 min primary index)



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## 3. Increase User Friendliness for you

- Reduce testing time (shorter discontinuation rules; 3)
- Free Online training



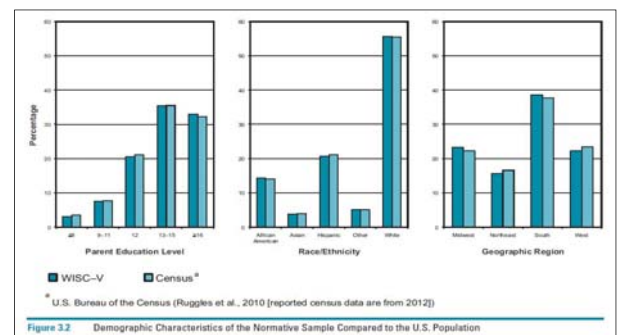
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## 4. Improve Psychometric Properties

- Researched & simplified -items and scoring rules
- Norms and norming method- stratified 2012 Census –data collected 4-13 to 3-14
- Maintained or improved reliability- test/retest stability
- Improved Floors and ceilings –better discrimination extreme ends
- More significance level options for critical values (.01, .05, .10, .15) statistical power

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## WISC-V Normative Sample



Age based norms tables – 3 month interval

## Correlations With WISC-IV

Composite	WISC-V Mean	WISC-IV Mean	Standard Difference
VCI	102.7	104.3	.12
VSI-PRI	102.8	107.3	.33
FRI-PRI	104.3	107.3	.22
WMI	101.7	103.0	.10
PSI	103.7	102.3	.09
FSIQ	104.4	106.0	.14
AWMI-WMI	102.5	103.1	.05
GAI	104.0	106.9	.23
CPI	103.2	103.3	.01

n=242; ages 6-16; difference expressed in SD units

The mean composite score differences between the WISC-IV and WISC-V Full Scale, VCI, and FRI scales are of the approximate magnitude expected from the Flynn effect (Flynn, 2007).

## 5. Enhance Clinical Utility

- Revise special group studies based on use
  - Drop ELD and RELD groups
  - Add special group studies
    - Intellectually Gifted, Intellectual Disability-Mild Severity, Intellectual Disability-Moderate Severity, Borderline Intellectual Functioning, Specific Learning Disorder-Reading, Specific Learning Disorder-Reading and Written Expression, Specific Learning Disorder-Mathematics, Attention-Deficit/Hyperactivity Disorder, Disruptive Behavior, English Language Learners, Autism Spectrum Disorder With Language Impairment, and Autism Spectrum Disorder Without Language Impairment.

## Enhance Clinical Utility

- Provide subtests known to be clinically sensitive to learning disabilities to enhance LD identification
  - Naming Speed
  - Symbol Translation
- Provide “PSW” analysis in WIAT-III and KTEA-3 software (Qglobal or Qinteractive)

## DEVELOPMENT OF THE WISC-V:

### Retained Content & New Subtests

All legacy items carried over from WISC (1949), WISC-R (1974), or WISC-III (1991) have been removed (21 subtests/13 retained from WISC-4)

## Dropped Subtests:

- Word Reasoning
  - Redundant measure of verbal comprehension (high correlation with Information and Vocabulary)
- Picture Completion
  - Construct not as representative of visual spatial ability as others (secondary verbal loading)

## Changes to Retained Verbal Comprehension subtests

### Information

### Similarities

### Vocabulary

- eliminated stimulus book

### Comprehension

### OVERALL---

- Updated art with increased international portability
  - Revised scoring rules with data-based queries
  - Reviewed vocabulary level (no more *advantage*)
  - New, contemporary item content
- “Why do people use passwords?”

## Changes to Retained "OLD" Perceptual Reasoning Subtests

### Block Design- now Visual Spatial

- New diamond and X-shaped designs
- New process scores
  - No Time Bonus (BDn)
  - Partial Score (BDp)
  - Dimension Errors (BDde)
  - Rotation Errors (BDre)



### Matrix Reasoning- now Fluid Reason

- Two item types retained and taught
  - 2x2 matrix
  - serial order
- New items



### Picture Concepts - now Fluid Reason

- Items revised so images not reused
- (new image influenced child's response)

## Changes to Retained Working Memory Subtests

### Digit Span

- Added new Sequencing task (forward/backwards/sequencing)

### Letter-Number Sequencing

- Eliminated rhyming letters & numbers (3-c)
- Teaching modified to extend floor -1st teach numbers before letters, then teach reordering task (give #'s first -avoid 'ABCD...')

## Changes – Arithmetic now on Fluid Reasoning

### Arithmetic

- New and revised items (math is easier but added more of a sequencing demand)

- One repetition on difficult items

"A band sets up for 25 minutes, plays for 40 minutes, and packs up for 20 minutes. The next band sets up for 20 minutes, plays for 45 minutes, and packs up for 15 minutes. The last band sets up for 20 minutes, plays for 105 minutes, and packs up for 10 minutes. If the first band starts setting up at 6:30, what time is it when the last band finishes packing up?"

## Changes to Retained Processing Speed Subtests

### Coding

- Changed symbols for digital
- Item difficulty consistent across rows



Sample Items



### Symbol Search

- New symbols
- Process (error) scores
  - Set errors
  - Rotation errors

### Cancellation

- New art
- Designed by quadrant (target to distracter ratio to match 6x8 iPad)



## New Subtests

- **Visual Spatial**
  - Visual Puzzles
- **Fluid Reasoning**
  - Figure Weights
  - (added Arithmetic)
- **Working Memory**
  - Picture Span
  - Digit Span (Sequencing task added to Digit Span)
- **Optional Ancillary Subtests - LD identification**
  - Naming Speed Literacy
  - Naming Speed Quantity
  - Immediate Symbol Translation
  - Delayed Symbol Translation
  - Recognition Symbol Translation

## Full Scale (FSIQ)



### Full Scale

Verbal Comprehension	Visual Spatial	Fluid Reasoning	Working Memory	Processing Speed
Similarities	Block Design	Matrix Reasoning	Digit Span	Coding
Vocabulary	Visual Puzzles	Figure Weights	Picture Span	Symbol Search
Information		Picture Concepts	Letter-Number Sequencing	Cancellation
Comprehension		Arithmetic		

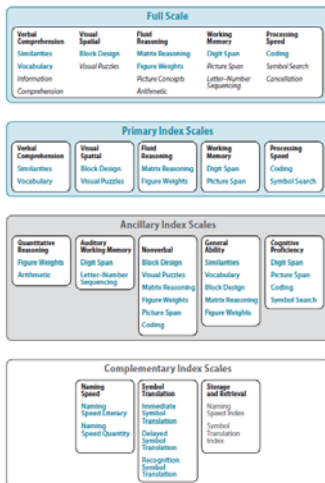
## WISC-V Framework

INDEX Types-

Primary

Ancillary

Complementary



SUBTEST Types-

Primary  
Secondary  
Complementary

## Quantitative Reasoning Index (QRI)

- Measures ability to perform mental math operations and understand quantitative relationships
- may be of special interest if child is suspected of having a specific learning disability in mathematics



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## Auditory Working Memory Index (AWMI)

- Ability to register, maintain and manipulate information presented verbally
- Purer measure of auditory working memory relative to the WMI
- domain-specific storage components may be related to various clinical conditions



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## Nonverbal Index (NVI)

Not language free

- Measure of general intellectual ability that **minimizes expressive language** demands
- Use with ELL, DHH, ASD w/ language impairment
- When DSM-5 requires nonverbal measure of ability to meet diagnostic criteria:
  - if a diagnosis of ID is established and a comorbid diagnosis of language disorder is being considered
  - if child is language impaired AND being considered for a diagnosis of ID, AND you cannot obtain valid scores on the VCI to get an FSIQ, use Nonverbal Index alternative (Raiford & Coalson, 2014)

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## General Ability Index (GAI)

- Estimate of general intellectual ability that excludes working memory and processing speed subtests
- Why GAI? Lower FSIQ score may mask meaningful differences between general cognitive ability (represented by FSIQ) and other cognitive functions (e.g., achievement, memory)
- Can use GAI with neurodevelopmental disorders- ADHD, language disorders, ASD
- NAGC position paper recommends use of the GAI in gifted evaluations

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## Cognitive Proficiency Index (CPI)

- Estimate of efficiency with which information is processed in the service of learning, problem solving, and higher order reasoning.
- Comprised of WM and PS tasks- Working memory and processing speed are related in that working memory involves identification, registration, and manipulation of information in short-term memory, and processing speed relates to how quickly you can register that information into STM.



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## Naming Speed Index (NSI) *Literacy & Quantity*

- estimate of automaticity of basic naming ability
- developed to enhance the assessment of children with suspected learning disabilities
- closely associated with reading and spelling skill development, and has shown sensitivity to reading disabilities
- Closely associated with math skill development, and has show sensitivity to math disabilities
- Also sensitive to other neurodevelopmental conditions - ADHD, language disorders, ASD
- not developed as a measure of intellectual ability

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## Symbol Translation Index (STI) *Immediate, Delayed, Recognition*

- broad estimate of **visual-verbal associative memory**
- Skill is related to reading decoding, word reading accuracy and fluency, text reading, and reading comprehension
- related to math calculation and math reasoning
- developed to enhance the assessment of individuals suspected of having learning problems or declarative memory impairment.
- sensitive to dyslexia
- not developed as a measure of intellectual ability

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## Storage and Retrieval Index (SRI) *(based on the sum of standard scores for the NSI and the STI)*

- broad estimate of long-term storage and retrieval accuracy and fluency derived from a variety of tasks that assess cognitive processes associated with reading, mathematics, and writing
- Long-term storage and retrieval is related to reading math and writing disabilities

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## Administration Caution- Ch 2

- Administer Naming Speed Literacy before Naming Speed Numeracy
- Don't administer Naming Speed Literacy between Immediate Symbol Translation and Delayed Symbol Translation
- Do not exceed 30 min between IST & DST
- Administer Recognition Symbol Translation (RST) immediately after DST

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## Administration cautions- Ch 2

- Testing preferably in 1 session
- If 2 sessions, preferably within a week
- IST, DST, RST administered all in the same session
- Chronological Age
  - No rounding
  - E.G. -8 yrs, 11 mo, 26 days = 8.11

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## Substitution and Proration = No More "Core" and "Supplemental"

FSIQ Subtest	Allowable Substitutions for Deriving the FSIQ*
Similarities	Information or Comprehension
Vocabulary	Information or Comprehension
Block Design	Visual Puzzles
Matrix Reasoning	Picture Concepts
Figure Weights	Picture Concepts or Arithmetic
Digit Span	Picture Span or Letter-Number Sequencing
Coding	Symbol Search or Cancellation

- Only one substitution OR proration on FSIQ
- No substitution or prorations on any index score
- Less necessary with the expanded composite score options

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## Maximum Number of Subtests with Raw Scores of 0

### Permitted:

FSIQ = FOUR out of SEVEN (if prorated to 6, then only 3)

Primary Index Scales = 1 out of 2

Ancillary Index Scales (QRI, AWM) = 1 out of 2

NVI = 3 out of 6

GAI = 3 out of 5

CPI = 2 out of 4

STI = 2 out of 3

If NSI or STI is missing do not compute SRI

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## Similarities (SI)

- Primary Verbal Comprehension subtest
- Consists of 23 test items: 7 retained, 8 modified, 16 new.
- New sample item.
- Scoring criteria for all retained and modified items are revised.

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## Similarities (SI)

- The child is read two words that represent common objects or concepts and describes how they are similar.



### Materials

- Administration and Scoring Manual
- Record Form

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## SI General Scoring Principles

- 2 points
  - Any major classification that is pertinent for both members of the item pair.
- 1 point
  - Any specific property common to both members that constitutes a minor or less pertinent similarity.
  - Any major classification that is less pertinent for both members of the item pair.
- 0 points
  - Any property that is not pertinent to both members, is too general in nature, or describes differences between member of the item pair.
  - Any clearly incorrect response.

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## Vocabulary (VC)

- Primary Verbal Comprehension subtest.
- Consists of 29 items: 4 picture items and 25 verbal items.
- The 14 new items include 2 picture items and 12 verbal items. There are a total of 15 retained items: 2 picture items and 13 verbal items.
- Scoring criteria for all retained verbal items were revised.

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## Vocabulary (VC)

- For picture items, the child names the depicted object. For verbal items, the child defines the word that is read aloud.

### Materials



- Administration and Scoring Manual
- Record Form
- Stimulus Book 1

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## Information (IN)

- Verbal Comprehension subtest.
- Consists of 31 items:
  - 19 new, 9 retained, 4 modified.
- Scoring criteria for all retained and modified items are revised.

## Information (IN)

- The child answers questions about a broad range of general-knowledge topics.

### • Materials

- Administration and Scoring Manual
- Record Form



## Comprehension (CO)

- Verbal Comprehension subtest.
- Consists of 19 items:
  - 13 new, 2 modified, 4 retained.
- Scoring criteria for all retained and modified items are revised.

## Comprehension (CO)

- The child answers questions based on his or her understanding of general principles and social situations.

### • Materials

- Administration and Scoring Manual
- Record Form



## Visual Spatial Subtests

Click to Edit



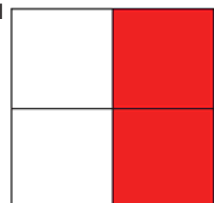
## Block Design (BD)

- Working within a specified time limit, the child views a model and/or a picture and uses two-color blocks to re-create the design.



### Materials

- Administration and Scoring Manual
- Record Form
- Stimulus Book 1
- Block Design Blocks
- Stopwatch





## BD Start Points

- **Start**

- **Ages 6-7:** Item 1
- **Ages 8-16:** Item 3
- *Children suspected of having an intellectual disability or low cognitive ability should start with Item 1.*



## BD Gap & Misalignment Errors

- Gaps and/or misalignments  $\leq \frac{1}{4}$ " are *not penalized*.
- Gaps and/or misalignments that are  $> \frac{1}{4}$ " are scored 0.
- A design may have both gaps and misalignments

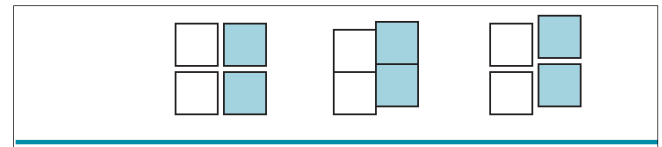


Figure 3.5 Examples of Acceptable Gaps and Misalignments Between Blocks

## BD Dimension Errors

- Max dimension for a square- or diamond- shape is exceeded
- Only penalize uncorrected errors
- BDde – process score

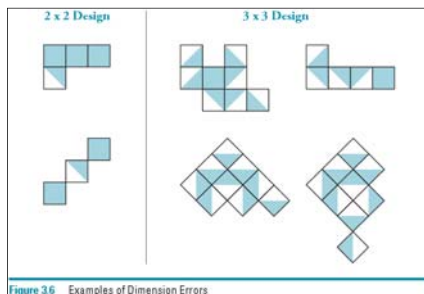
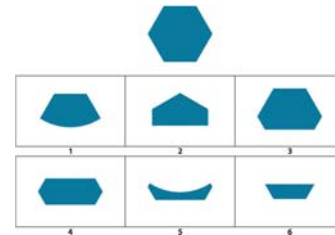


Figure 3.6 Examples of Dimension Errors

## Visual Puzzles

ex



Which three pieces go together to make this?

## Visual Puzzles (VP)

- Within a specified time limit, the child views a completed puzzle and selects three response options that, when combined, reconstruct the puzzle.



### Materials

- Administration and Scoring Manual
- Record Form
- Stimulus Book 1
- Stopwatch

## VP Start Points

- **Start**



- **All Ages:** Demonstration and Sample Items
  - **Ages 6-8:** Item 1
  - **Ages 9-11:** Item 5
  - **Ages 12-16:** Item 8
- *Children suspected of having an intellectual disability or low cognitive ability should start with the Demonstration Item, Sample Item, then Item 1.*

## VP Reverse & Discontinue

### • Reverse



- If a child aged 9–16 does not obtain a perfect score on *either of the first two items given*, administer the preceding items in **reverse order until the child obtains perfect scores on two consecutive items**.

### • Discontinue



- Discontinue after **3 consecutive scores of 0**.

## VP Timing



- The time limit for each item is **30 seconds**.
- Accurate timing is *essential*.
  - **Begin** after saying the last word of instruction.
  - **Stop** when:
    - the child selects three response options,
    - indicates that he or she does not know the answer, or
    - the time limit expires

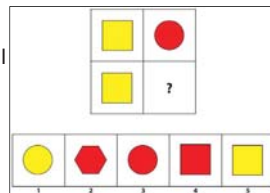
## Matrix Reasoning (MR)

- The child views an incomplete matrix or series and selects the response option that completes the matrix or series.



### Materials

- Administration-Scoring Manual
- Record Form
- Stimulus Book 1



## MR General Directions & Scoring

- General Directions- essential to point to the visual stimuli, response options and box with '?' mark
- Scoring
  - Score 1 point if the child gives a correct response (points to or says response #)
  - Total all correct responses prior to discontinue
    - Include all items prior to start point as correct

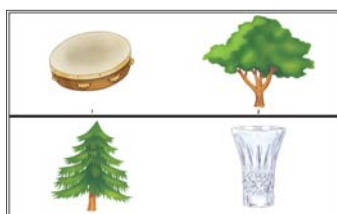
## Picture Concepts (PC)

- The child views two or three rows of pictures and selects one picture from each row to form a group with a common characteristic.



### Materials

- Administration and Scoring Manual
- Record Form
- Stimulus Book 2

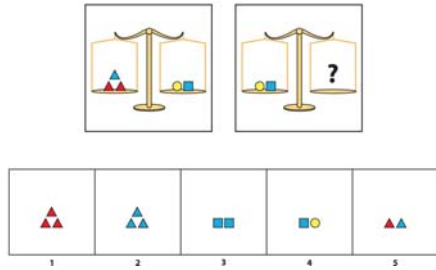


## PC General Directions & Scoring

- General Directions
- Scoring
  - Circle the child's response(s) for each item. Correct responses are printed in color on the Record Form and are listed in the manual.
  - Score 1 point only if the child selects *all of the correct responses for an item*.
  - Total all correct responses prior to discontinue
    - Include all items prior to start point as correct

## Figure Weights

ex



"Which one of these weighs the same as this?"

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## FW Timing



- Time limit for Items 1–18: **20** seconds
- Time limit for Items 19–34: **30** seconds
- Accurate timing is essential.
- Stop timing when:
  - the child responds,
  - the child indicates that he or she does not know the answer, or
  - the time limit expires.

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## Arithmetic (AR)

- For both the *picture and verbal items*, the child mentally solves arithmetic problems within a specified time limit.



### Materials

- Administration and Scoring Manual
- Record Form
- Stimulus Book 2
- Stopwatch

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## Figure Weights (FW)

- Within a specified time limit, the child views a scale with missing weight(s) and selects the response option that keeps the scale balanced.
  - Measures quantitative fluid reasoning



### Materials

- Administration and Scoring Manual
- Record Form
- Stimulus Book 1
- Stopwatch

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## FW General Directions & Scoring

- General Directions
- Scoring
  - Record the completion time in seconds for each item.
  - 1 point = a correct response within the time limit.
  - 0 points = an incorrect response, child says he or she does not know the answer, or does not respond within the time limit.
  - Total all correct responses prior to discontinue
    - Include all items prior to start point as correct

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## AR General Directions & Scoring

- General Directions
  - Picture Items (1-5)
  - Verbal Items (6-34)
- Scoring
  - 1 point = a correct response within the time limit.
    - Award credit for a response if it is numerically correct but minus units ('25' or '25 cars')
    - When time is the unit must identify the unit... (1 'hour' or 60 'minutes')
  - 0 points = an incorrect response, child says he or she does not know the answer, or does not respond within the time limit.

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## Repetition

- Repetition is not allowed on Items 1–19. If the child requests a repetition of one of these items, say, I can't say it again. Do not stop timing to provide this prompt.
- Repetition is allowed on Items 20–34. **Each of these items may be repeated at the child's request one time only**, but do not alter the wording in any way. If the child requests a repetition, immediately pause timing and repeat the item. Resume timing after the last word of the repeated item, and continue timing until the child responds or the time limit expires. If the child requests a second item repetition, say, I can't say it again. Do not stop timing to provide this prompt.
- The child may not use a pencil or paper for any item, but do not discourage the child from writing on the table with his or her finger.

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## Coding (CD)

- Processing Speed subtest
  - Form A has 75 test items, utilizing 5 shapes and symbols:
    - 3 retained
    - 2 modified
  - Form B has 117 items, utilizing 9 symbols:
    - 6 new
    - 3 modified
- more equitable item difficulty across the subtest  
-shapes /numbers balanced to occur twice within each row  
-symbols are revised to improve scoring reliability & digital adaptability

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## Coding (CD)

- Working within a specified time limit and using a key, the child copies symbols that correspond with simple geometric shapes or numbers.



### Materials

- Administration and Scoring Manual
- Record Form
- Response Booklet 1
- #2 Pencil without eraser
- Stopwatch
- Coding Scoring Template

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## Symbol Search(SS)

- Processing Speed subtest
- Form A has 40 items, all new.
- Form B has 60 items, all new.
- Revised to require child to mark the selected search group symbol or the “No” box

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## Symbol Search (SS)

- Working within a specified time limit, the child scans search groups and indicates if target symbols are present.



### Materials

- Administration and Scoring Manual
- Record Form
- Response Booklet 1
- #2 Pencil without eraser
- Stopwatch
- Symbol Search Scoring Key

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## Cancellation (CA)

- Processing Speed subtest
- Consists of 2 items: Random arrangement and Structured arrangement, both revised.
  - target to distracter ratio balanced

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## Cancellation (CA)

- Working within a specified time limit, the child scans two arrangements of objects (one random, one structured) and marks target objects.



### Materials

- Administration and Scoring Manual
- Record Form
- Response Booklet 2
- Red Pencil without eraser
- Stopwatch
- Cancellation Scoring Template

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## Digit Span (DS)

- Primary Working Memory subtest
- Consists of 3 tasks: Digit Span Forward, Digit Span Backward, and Digit Span Sequencing.
- 9 items for each task.
  
- Expanded length to 10, new item sequence

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## Digit Span (DS)

- The child is read a sequence of numbers in the same order (Forward task), reverse order (Backward task), and ascending order (Sequencing task).



### Materials

- Administration and Scoring Manual
- Record Form

\*Must give DS Forward- omission reduces DS Backward score, provides floor

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## DS Scoring

- Record responses verbatim.
- If Sequencing qualifying item is administered, circle Y or N on the Record Form to indicate if the child correctly counts to at least 3.
- Score 1 for a correct response.
- Score 0 for incorrect, DK, or NR within approximately 30 seconds.

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## Picture Span (PS)

- The child views a stimulus page with one or more pictures for a specified time and then selects the pictures (in sequential order, if possible) from options on a response page.



### Materials

- Administration and Scoring Manual
- Record Form
- Stimulus Book 2
- Stopwatch

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## PS Timing

- Accurate timing is *essential*
  - Begin timing for each item after saying the last word of instruction.
- Sample Item A: Expose the stimulus page for 3 seconds.
- Sample Item B: Expose the stimulus page for 5 seconds.



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## PS General Directions

- Each item requires a stimulus page and a response page in Stimulus Book 2.
- With the exception of the sample and teaching items, the stimulus page for each item is exposed one time only.
  - If the child asks for another exposure, say ***I can only show it one time. Just take your best guess.***

## PS General Directions cont.

- The child must indicate his or her choice(s) by pointing to or saying the letter(s) of the selected response(s).
  - If the child provides other responses, say ***Show me.***
- If the child self-corrects after his or her initial response, score only the intended response.
- Sample Items
  - A has two trials and is designed to teach the task for Items 1-3.
  - B and C have two trials each and are designed to teach the task for Items 4-26.

## PS Scoring

- Record the letters that correspond to the child's choices in the same order the child indicates.
- Correct responses are listed on the RF and in the Administration and Scoring manual.
  - Score 2, 1, or 0 points according to the scoring directions.

## PS Record Form

9. Picture Span

Sample A-Item 3. Expose stimulus for 3 seconds.  
Sample B-Item 26. Expose stimulus for 6 seconds.

**Start**  
Ages 6-16  
Samples B & C, then Item 4.

**Reverse**  
Ages 6-16  
Imperfect score on either of the first two items gives administrator preceding items in reverse order until two consecutive perfect scores are obtained.

**Instructions**  
After 3 consecutive scores of 0.

**Score**  
Record responses verbatim.  
Items 1-3: Score 0 or 1 point.  
Items 4-26: Score 0, 1, or 2 points.  
LPS: Number of pictures on the stimulus page for the last item assigned a perfect score.  
LPS: Number of pictures on the response page for the last item assigned a perfect score.

Item	Correct Response	Response	Score
SA, B		Trial 1      Trial 2	
T1, A			0 1
T2, C			0 1
3, E			0 1
SB, B - A		Trial 1      Trial 2	
SC, D - A		Trial 1      Trial 2	

Changing time limit reminder

LPSs (Max = 8)      LPSr (Max = 12)      Picture Span Total Raw Score (Maximum = 49)

## Letter-Number Sequencing (LN)

- Working Memory subtest
- Consists of 10 test items of 3 trials each: 26 trials are new; 4 retained.
- Two new sample trials; 1 retained
- Both demonstration trials are new; both qualifying items retained.

## Letter-Number Sequencing (LN)

- The child is read a sequence of numbers and letters and recalls the numbers in ascending order and then the letters in alphabetical order.



- **Materials**
  - Administration and Scoring Manual
  - Record Form

## LN General Directions

- Administer the Counting and Alphabet Qualifying Items to children ages 6-7 to evaluate whether they have the requisite knowledge to respond correctly to the test items.
- Demonstration Item A and Sample Item A are used to teach the task for Items 1-2.
  - Child must recall number first, then letter.
- Demonstration Item B and Sample Item B are used to teach the task for Items 3-10.
  - Credit if all letters and numbers are recalled in correct order, **even if letters are recalled before numbers**.

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## Naming Speed Literacy (NSL)

The child names elements (e.g., objects of various size and color, letters and numbers) as quickly as possible.



### • Materials

- Administration and Scoring Manual
- Record Form
- Stimulus Book 3
- Stopwatch

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## NSL - Key Administration Points

- 2 consecutive errors in a single row:
  - point to the second misnamed element say, “Keep going from here. ”
    - Do not stop timing to provide this prompt.
- Skips a row or begins to complete a row in reverse order,
  - point to the first element in the row to be completed, say, “Keep going from here.”
    - Do not stop timing to provide this prompt.

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## NSL - Key Administration Points

- Hesitates at the end of a row, :
  - say, Go on to the next row.
    - Do not stop timing to provide this prompt.
- Hesitates on single element for more than 5 seconds:
  - say, Go on to the next one. Do not stop timing to provide this prompt.
- On the Letter-Number condition, remind 7-8 year-olds to use finger for tracking.

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## Additional Scoring Guidance

- Dysfluent responses are not Self Corrections
- If 7-8 yr child does not respond correctly to sample item B record completion time as 600 seconds- go on to item #3
- Record completion time in seconds- if a trial is not completed before the time limit, record the completion time as 300 seconds.

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## Naming Speed Quantity (NSQ)

The child names the quantity of squares inside a series of boxes as quickly as possible.



### • Materials

- Administration and Scoring Manual
- Record Form
- Stimulus Book 3
- Stopwatch

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## NSQ - Key Administration Points

- Test Items 1 and 2 each have two trials with four rows of boxes per trial.
  - Administer BOTH trials for each item
- 2 consecutive errors in a single row:
  - point to the second misnamed element say, “Keep going from here. ”
    - Do not stop timing to provide this prompt.
- Skips a row or begins to complete a row in reverse order,
  - point to the first element in the row to be completed, say, “Keep going from here.”
    - Do not stop timing to provide this prompt.

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## NSQ - Key Administration Points

- Children aged 6–8 are required to track their progress across the rows of boxes with their finger.
  - If the child is not tracking, say, “Use your finger to keep your place.”
    - Do not stop timing to provide this prompt.
- Children aged 7–8 are required to use finger tracking on Item 2, but those aged 9–16 are not.
  - Instructions for the younger age group are presented in a shaded box

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## NSQ - Key Administration Points

- Hesitates at the end of a row, :
  - say, Go on to the next row.
    - Do not stop timing to provide this prompt.
- Hesitates on single element for more than 5 seconds:
  - say, Go on to the next one.
    - Do not stop timing to provide this prompt.
- Self-corrections are permitted
  - Score last response

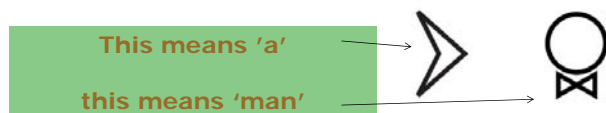
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## Immediate Symbol Translation (IST)

## Symbol Translation

Immediate  
Delayed  
Recognition



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## Immediate Symbol Translation (IST)

The child learns visual-verbal pairs and then translates symbol strings into phrases or sentences.



### Materials

- Administration and Scoring Manual
- Record Form
- Stimulus Book 3

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## IST- Key Administration Points

- No response to a symbol after approximately 5 seconds, or “don’t know”
  - say, Go on to the next one.
- Provides multiple translations for a symbol, or self-corrects after his or her initial response, score only the intended response.
- If the child begins from his or her right to left, point to the first symbol in the string and say,
  - Start again from here.

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## IST- Key Administration and Recording Points

- If you are unsure of the child’s location in the symbol string during translation, point to the first symbol in the string and say,
  - Start again from here.
- Items 1-3 have two trials, errors are corrected
  - No need to administer T2 if T1 correct
- Record the subtest stop time if Delayed Symbol Translation or Recognition Symbol Translation will be administered

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## IST- Key Scoring Points

- Translation must be precise to be correct
- The inclusion of extraneous or additional words in a translation does not affect the score
  - i.e., had ate
- Mark correct translations
  - Incorrects, skipped symbols may be marked for qualitative purposes

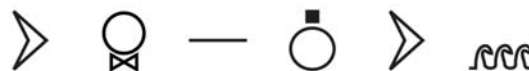
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## Delayed Symbol Translation (DST)

After a 20-30 minute delay, the child translates symbols into words, phrases, or sentences using recalled visual-verbal pairs from Immediate Symbol Translation.

*‘Tell me what each one means.’*



*A man is on a boat.*

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## DST- Key Administration Points

- No response to a symbol after approximately 5 seconds, or “don’t know”
  - say, Go on to the next one.
- Provides multiple translations for a symbol, or self-corrects after his or her initial response, score only the intended response.
- If the child begins from his or her right to left, point to the first symbol in the string and say,
  - Start again from here.

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## DST- Key Administration and Recording Points

- If you are unsure of the child’s location in the symbol string during translation, point to the first symbol in the string and say,
  - Start again from here.
- Do **not** provide any assistance if the child cannot remember a previously learned visual-verbal pair.

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## DST- Key Scoring Points

- Translation must be precise to be correct
- The inclusion of extraneous or additional words in a translation does not affect the score
  - i.e., had ate
- Mark correct translations
  - Incorrects, skipped symbols may be marked for qualitative purposes

## Recognition Symbol Translation (RST)



Which word goes with this picture?

Man  
Circle  
At  
On

## Recognition Symbol Translation (RST)

- The child views a symbol and selects the correct translation, from response options the examiner reads aloud, using recalled visual-verbal pairs from Immediate Symbol Translation.



### Materials

- Administration and Scoring Manual
- Record Form
- Stimulus Book 3

## RST - General Administration Guidance

- May be administered regardless of performance on DST
  - Must be administered right after DST if both administered
  - 20 to 30 minutes after the completion of (IST)
- Read each response option verbatim to the child
- Repeat items as often as necessary, but do not alter the wording

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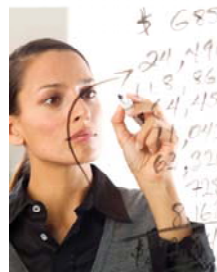
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WISC-V

## Interpreting Performance



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## Levels of Analysis Available

- PRIMARY- Using Primary Subtests and Indexes
- ANCILLARY-Using Primary Subtests and Indexes
- COMPLEMENTARY - Using Primary Subtests and Indexes
- Process Score Analysis
- PSW/AAD

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## Basic Steps to Interpretation

- 1. Report & describe FSIQ
- 2. Report & describe Primary Index Scores
  - a. S & W
  - b. Pairwise comparisons
- 3. Describe Subtest level performance
  - a. S & W
  - b. Pairwise comparisons
- 4. Ancillary scales report & describe- optional (clinical conditions)
- 5. Complementary scales- optional (LD id, PSW, XBA)

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## Additional information

- 6. Ancillary/Complementary Index and Subtest pairwise comparisons
- 7. Process scores/ Contrast scores
- 8. Process Behavioral observations

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## Keep these in mind when describing Scores

- Types of scores and their appropriate uses & limitations
- Confidence Intervals
- Levels of Significance
- Statistical (Numerical) vs. "Clinical" Significance (Base Rates)

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## 2. Report & describe Primary Index Scores

- a. Strengths & Weaknesses

### PRIMARY ANALYSIS

#### Index Level Strengths and Weaknesses

Index	Score	Comparison Score	Difference	Critical Value	Strength or Weakness	Base Rate
VCI	106	99.4	6.6	11.32		≤25%
VSI	111	99.4	11.6	12.40		≤15%
FRI	112	99.4	12.6	11.32	S	≤10%
WMI	79	99.4	-20.4	11.87	W	≤2%
PSI	89	99.4	-10.4	14.33		≤25%

Comparison score mean derived from the five index scores (MIS).  
Statistical significance (critical values) at the .01 level.  
Base rates are reported by overall sample.

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- Step 2 Describe Primary scales:  
**What is represented by the VCI?**



Difference from IV-Comprehension no longer core

*High scores on VCI suggest a well-developed verbal reasoning system with strong word knowledge acquisition capacity, effective information retrieval, ability to reason and solve verbal problems, and the capacity to effectively communicate their knowledge.*

*Low scores may be due to poorly develop word knowledge, difficulty retrieving acquired information, problems with verbal expression, or general difficulties with reasoning and problem solving.*

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## Limitations of Scores

- Percentile Ranks
  - Not equal intervals
- Age Equivalents
  - Provide minimal information concerning standing relative to same-age peers
  - Not equal intervals
    - Overlaps in average range for adjacent age groups
  - Can't compare across subtests
  - Extreme AE don't necessarily indicate that the child performed like that age child in every way

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## 2. Report & describe Primary Index Scores

- b. Pairwise comparisons

### Index Level Pairwise Difference Comparisons

Index Comparison	Score 1	Score 2	Difference	Critical Value	Significant Difference	Base Rate
VCI - VSI	106	111	-5	15.48	N	38.4%
VCI - FRI	106	112	-6	14.49	N	33.4%
VCI - WMI	106	79	27	14.99	Y	3.3%
VCI - PSI	106	89	17	17.31	N	16.6%
VSI - FRI	111	112	-1	15.48	N	50.0%
VSI - WMI	111	79	32	15.95	Y	2.1%
VSI - PSI	111	89	22	18.16	Y	10.6%
FRI - WMI	112	79	33	14.99	Y	1.4%
FRI - PSI	112	89	23	17.31	Y	10.3%
WMI - PSI	79	89	-10	17.73	N	27.5%

Statistical significance (critical values) at the .01 level.  
Base rates are reported by overall sample.

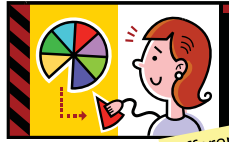
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## Tips for Interpretation of VCI

- Are the subtest scores similar across demands?
- What did you observe relative to memory and oral expression?
- Are there any parallels between the student's age, educational experience and interest in reading? (*Matthew effect*)

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## What is represented by the VSI?



Difference from PRI  
IV- new subtests,  
only shares BD

**High scores on VSI indicate a well-developed capacity to integrate and apply spatial reasoning and perception of visual details.**

**Low scores may be due to deficits in spatial processing, visual discrimination, visual attention, visuomotor integration deficits, or general low reasoning ability.**

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## What is represented by the FRI?



Difference from PRI  
IV- new subtests,  
only shares MR

**High scores indicate a well-developed ability to glean conceptual information from visual details and to effectively apply that knowledge.**

**Low scores may be due to difficulties identifying important visual information, linking visual information to abstract concepts, understanding and applying quantitative concepts or general low reasoning ability.**

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## What is represented by the WMI?



Difference from  
IV- new subtests,  
only shares DS

**High scores indicate well developed ability to identify, maintain in temporary storage, and re-sequence visual and auditory information for use in problem solving.**

**Low scores may be due to distractibility, visual or auditory discrimination problems, difficulties actively maintaining information in conscious awareness, low storage capacity, difficulty manipulating information in working memory, or general low cognitive functioning.**

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## What is represented by the PSI?



Item difficulty more  
evenly balanced;  
CD no need to lift  
pencil

**High scores on PSI indicate a well-developed ability to rapidly identify visual information, to make quick and accurate decisions, and to rapidly implement those decisions.**

**Low scores may be due to visual discrimination problems, distractibility, slowed decision making, or generally slow cognitive speed.**

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## Basic Steps to Interpretation

- 3. Evaluate Subtest-Level Strengths and Weaknesses
- Compare subtest scores with either the mean scaled score based on the Primary Index subtests OR the FSIQ
  - Why choose one over the other?
    - >More data points (broader sampling of skills)

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## Basic Steps to Interpretation

- 3b. Evaluate the 'within Index' Subtest-Level Pairwise Comparisons
- Manual provides:
  - *Significance Level* selection guidance (use more stringent level if all pairwise comparisons are made to avoid overstatement)

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## Ancillary Profile Analysis - Report and describe QRI

Quantitative Reasoning Index	135
Auditory Working Memory Index	133
Nonverbal Index	135
General Ability Index	137
Cognitive Proficiency Index	123

*High scores on this index suggest well developed capacity to perform mental math operations and to understand quantitative relationships.*

*Low scores may be due to difficulties with mental math operations, understanding quantitative relationships, low working memory ability, or general difficulties with abstract conceptual reasoning.*

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## Ancillary Profile Analysis - Report and describe AWMI

Quantitative Reasoning Index	135
Auditory Working Memory Index	133
Nonverbal Index	135
General Ability Index	137
Cognitive Proficiency Index	123

*High scores on this index indicate a well developed ability to register, maintain, and manipulate information presented in an auditory modality.*

*Low scores may be due to auditory processing difficulties, inattention, distractibility, low auditory working memory storage or manipulation, or general low working memory ability.*

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## Ancillary Profile Analysis - Report and describe NVI

Quantitative Reasoning Index	135
Auditory Working Memory Index	133
Nonverbal Index	135
General Ability Index	137
Cognitive Proficiency Index	123

NVI is NOT language-free, its "language reduced" (Ortiz et al., 2012) child has to comprehend instructions in English.

*High scores indicate well developed general intellectually functioning for visually presented stimuli.*

*Low scores may reflect slow processing speed, low working memory, low abstract and conceptual reasoning abilities, low spatial reasoning, or general low intellectual ability.*

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## Ancillary Profile Analysis - Report and describe GAI

Quantitative Reasoning Index	135
Auditory Working Memory Index	133
Nonverbal Index	135
General Ability Index	137
Cognitive Proficiency Index	123

*High scores on GAI indicate well developed abstract, conceptual reasoning, visual-perceptual and spatial reasoning, and verbal problem solving.*

*Low scores may occur due to poor reasoning skills, visual-spatial processing difficulties, language deficits, or general low intellectual ability.*

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## Disclaimer

- The GAI does not replace the FSIQ as the best estimate of overall ability
- The GAI should be reported and interpreted along with the FSIQ and all primary index scores, including the WMI and PSI
- Why? Working memory and processing speed are vital to a comprehensive evaluation of overall cognitive ability

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## When should I consider deriving the GAI?

- a significant and unusual discrepancy exists between the WMI or the PSI and:
  - Other indexes- FSIQ, VCI, VSI, FRI
- a significant and unusual discrepancy exists between subtests that contribute to either the WMI or to the PSI, or
- a significant and unusual discrepancy exists between a Working Memory or Processing Speed subtest and the MSS-I or MSS-F.

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## Report and Describe CPI

<b>Quantitative Reasoning Index</b>	135
<b>Auditory Working Memory Index</b>	133
<b>Nonverbal Index</b>	135
<b>General Ability Index</b>	137
<b>Cognitive Proficiency Index</b>	123

*High scores on this index indicate a high degree of cognitive efficiency for manipulating and rapidly processing information.*

*Low scores may be due to visual or auditory processing deficits, inattention, distractibility, visual-motor difficulties, limited working memory storage or mental manipulation capacity- or general low cognitive ability.*

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## Report and Describe Complementary Scores

Total Raw Score to Standard Score Conversion

Process Score	Raw Score	Standard Score
Naming Speed Literacy	<input type="text"/>	<input type="text"/>
Naming Speed Quantity	<input type="text"/>	<input type="text"/>
Immediate Symbol Translation	<input type="text"/>	<input type="text"/>
Delayed Symbol Translation	<input type="text"/>	<input type="text"/>
Recognition Symbol Translation	<input type="text"/>	<input type="text"/>

Naming Speed      Symbol Trans.

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## Report and Describe Naming Speed Index (NSI)

*High scores on this index indicate a high degree of naming automaticity and rapid, efficient verbal retrieval abilities.*

*Low scores may be a result of visual-processing deficits, information retrieval difficulties, weak language skills, low naming skills or generally slow cognitive functioning.*

To understand more fully, make sure to look at components of the NSI, pairwise comparison of NSL and NSQ is important.

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## Report and Describe Symbol Translation Index (STI)

*High scores on this index indicate well developed encoding and retrieval of newly learned visual-verbal associations after short and long delays.*

*Low scores may be a result of visual or verbal processing deficits, inattention, distractibility, poor information encoding, difficulties accessing information from memory, rapid forgetting, or general memory impairment.*

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## Report and Describe Storage and Retrieval Index (SRI)

*High scores indicate a well developed capacity for new learning and rapid access to existing verbal knowledge stores.*

*Low scores may be a result of difficulty encoding and/or retrieving information from long-term memory, difficulty acquiring new information, slow processing speed, visual and/or language processing deficits and/or inattentiveness.*

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## Ancillary/Complementary Index-Level Pairwise Comparisons

Pairwise Difference Comparisons							Comparison Selections			
Comparison	Score 1	Score 2	Difference	Critical Value	Significant Difference	Base Rate	Critical Value Significance Level			
GAI - FSIQ	GAI 120	- FSIQ 113	= 7	3.00	Y or N	8.0	<input type="checkbox"/> .01	<input type="checkbox"/> .05	<input checked="" type="checkbox"/> .10	<input type="checkbox"/> .15
GAI - CPI	GAI 120	- CPI 91	= 29	8.52	Y or N	8.0	Base Rate Reference Group			
WMI - AMWI	WMI 91	- AMWI 92	= -1	5.73	Y or N		<input type="checkbox"/> Overall Sample	<input checked="" type="checkbox"/> Ability Level		
NSI - STI	NSI 106	- STI 94	= 12	10.99	Y or N	24.1				
NSL - NSQ	NSL 112	- NSQ 100	= 12	15.56	Y or N					

GAI> FSIQ Overall estimate of cognitive ability is lowered by including WMI and PSI skills

Wide variety of clinical conditions (e.g., SLD, ADHD, ASD, GT and language disorders) show a pattern of significantly higher GAI vs FSIQ

## Ancillary/Complementary Index-Level Pairwise Comparisons

Pairwise Difference Comparisons						Comparison Selections	
Comparison	Score 1	Score 2	Difference	Critical Value	Significant Difference	Base Rate	
GAI - FSIQ	GAI 120	- FSIQ 113	= 7	3.00	Y or N	8.0	<input type="checkbox"/> .01 <input type="checkbox"/> .05 <input checked="" type="checkbox"/> .10 <input type="checkbox"/> .15
GAI - CPI	GAI 120	- CPI 91	= 29	8.52	Y or N	8.0	<input type="checkbox"/> Overall Sample <input checked="" type="checkbox"/> Ability Level
WMI - AMWI	WMI 91	- AMWI 92	= -1	5.73	Y or N		
NSI - STI	NSI 106	- STI 94	= 12	10.99	Y or N	24.1	
NSL - NSQ	NSL 112	- NSQ 100	= 12	15.56	Y or N		

NSI > STI - rapid access to previously acquired information is a strength relative to capacity for new associative learning and memory.

STI > NSI - learning and memory for recently acquired visual-verbal associations is a strength relative to rapid access to previously acquired visual-verbal associations. It suggests storage and retrieval accuracy is a strength relative to automaticity and fluency.

## Symbol Translation Subtests

Subtest Level	FW-AR	FW	-	AR	=			Y or N	
	DS-LN	DS	-	LN	=			Y or N	
	NSL-NSQ	NSL	-	NSQ	=			Y or N	
	IST-DST	IST	-	DST	=			Y or N	
	IST-RST	IST	-	RST	=			Y or N	
	DST-RST	DST	-	RST	=			Y or N	

IST- Learning ability  
DST- Memory (recall)  
RST- Memory (recognition) cues needed for retrieval

Chapter 6

## Process approach to interpretation

- Edith Kaplan, Dean Delis
- Qualitative analysis of performance
- Does not take the place of primary scores cannot be used for substitutions
- For select subtests only- Appendix C & D
- Process score types: scale scores, raw scores, longest span, error type and observation



## USING RESULTS FOR SLD Identification

## Definition of SLD --- IDEA 2004

### IDEIA 2004 -Allowable Methods for LD Diagnosis/Classification

- **Specific learning disability** means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia.
- (ii) Disorders not included. Specific learning disability does not include learning problems that are primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage.

... Much Debate on Methods for LD identification

"RTI Only"

"Comprehensive Evaluations" - using more in-depth psychoeducational assessment including norm-referenced assessments

- Combination or Hybrid approach

## Research Support – Eval of Cog. Processes

- Johnson, Humphrey, Mellard, Woods and Swanson (2010), in a meta-analysis of 32 studies regarding the evaluation of cognitive processes to inform the identification of a specific learning disability, found differences of sufficient magnitude between groups of students with SLD and typically achieving students to justify including appropriate, technically adequate measures of cognitive processing ability in a comprehensive evaluation of students suspected of having a specific learning disability.

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## Which Processes to Assess?

Debate on Process Assm't/Intvn-  
CT 2010 LD Ident. Guidelines-

- Little evidence for role of basic processes (e.g. visual processing, learning styles) in LD etiology/diagnosis (CT Guidelines, pp. 2-3). Also, for auditory temporal sequencing (Vellutino, et al. (2004) -Journal of Child Psychology and Psychiatry 45:1 (2004), pp 2-40
- “Conversely, a substantial link for a causal relationship between cognitively based information processing and learning disabilities has been described in the literature over the past decade, particularly in area of reading achievement (Floyd, Keith, Taub and McGrew, 2007; Hulme, Snowling, Caravolas and Carroll, 2005; Meltzer and Krishnan, 2007; Torgesen, 2002).” (CT Guidelines, p.3)

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## V. Berninger –Univ of Washington

### Example of LD Eval. (in Reading) using this model

Berninger notes a number of features of reading disabilities based on research to date -

- Phonological processing - (accuracy/rate of word reading, decoding, oral reading, spelling)
- Orthographic processing - (seeing/processing visual forms of letters and words)
- Impaired verbal working memory
- Impaired speed of processing and retrieval for various aspects of written language - (phonological, orthographic, and morphological word forms)
- Impaired executive function skills for managing these various reading/written language skills

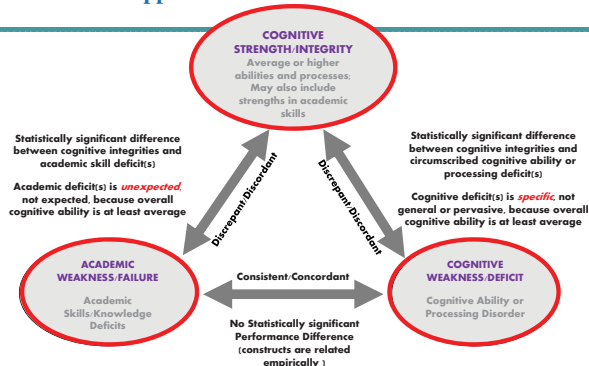
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## Overview of Comprehensive Evaluation Models focused on Processing Strengths and Weaknesses (PSW)

- Many researchers have developed models
  - Berninger et al. (2005)
  - Flanagan, D.P., & Alfonso, V.C., (2011).
  - Hale, J. B., & Fiorello, C. A. (2004).
  - McCloskey (2011)
  - Naglieri (1999)

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## Common Elements of “PSW Component” of Third Method Approaches to SLD Identification

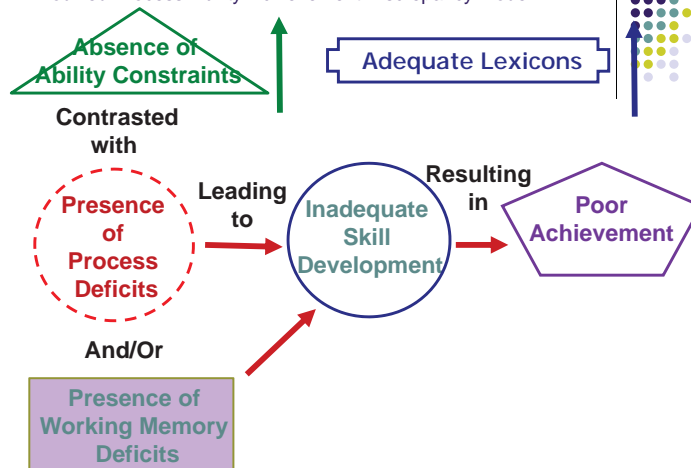


Sotelo, Flanagan, and Alfonso (2011). Overview of SLD Identification. In D. P. Flanagan & V. C. Alfonso, *Essentials of Specific Learning Disability Identification*. Hoboken, NJ: Wiley.

Flanagan, Fiorello, and Ortiz (2010); Hale, Flanagan, and Naglieri (2008)

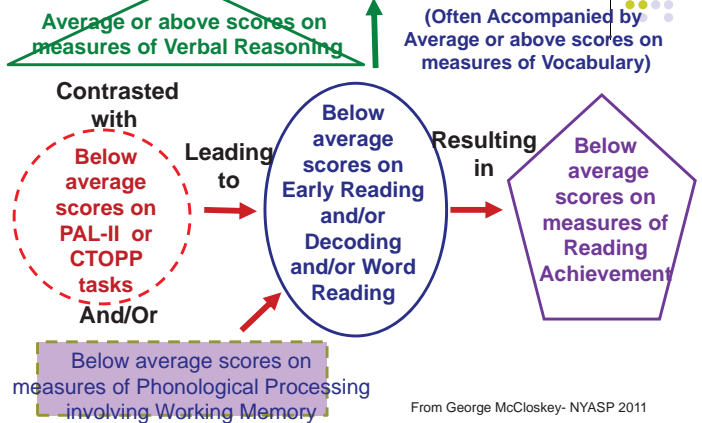
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## Modified Process-Ability-Achievement Discrepancy Model



From George McCloskey- NYASP 2011

Modified Process-Ability-Achievement  
Discrepancy Model Applied to Developmental  
Phonological Dyslexia



From George McCloskey- NYASP 2011

**AAD vs. PSW**

- Various WISC-V index scores are mainly used in the PSW analysis as measures of processing strengths and weaknesses (FSIQ, NVI, and GAI not used)
- Two score comparisons are required to meet the criteria of the PSW model, rather than the single comparison used in the AAD analysis.
- Statistical evidence of a processing weakness is an essential requirement of the PSW analysis (consistent w/ fed LD def)

**PATTERN OF STRENGTHS AND WEAKNESSES ANALYSIS**

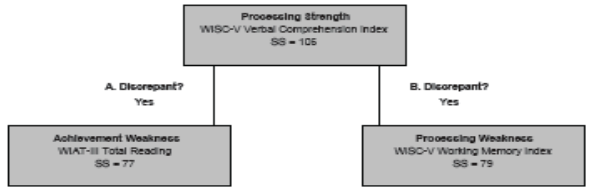
Area of Achievement Weakness	WIAT-III	Total Reading: 77
Area of Processing Weakness	WISC-V	WMI: 79
Area of Processing Strength	WISC-V	VCI: 106

Comparison	Relative Strength Score	Relative Weakness Score	Difference	Critical Value .01	Significant Difference Y/N	Supports SLD hypothesis? Yes/No
A. Processing Strength/Achievement Weakness	106	77	29	13.00	Y	Yes
B. Processing Strength/Processing Weakness	106	79	27	15.00	Y	Yes

The PSW model is intended to help practitioners generate hypotheses regarding clinical diagnoses. The analysis should always be used within a comprehensive evaluation that incorporates multiple sources of information.

**Pattern of Strengths and Weaknesses Model**



**Further Information**

WISC-V--- [www.wiscv.com](http://www.wiscv.com)

Q- Interactive or Q-Global- [www.HelloQ.com](http://www.HelloQ.com)

THANKS FOR COMING TODAY!!!!

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