Introducing the WISC-V

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Top 10 Enhancements
1. In addition to traditional paper and pencil, comes in a digital format, bringing the power of WISC-V to your tablet!
2. Increased coverage of cognitive processes related to SLD Identification.
3. Statistically linked to the KTEA-3 and the WIAT-III, with combination scoring reports available!
4. Presents a 5-Factor structure.
5. Shorter discontinue rules.
6. Supports a processing strengths and weakness analysis approach.
7. New special group studies.
8. Basic training included with the kit.
9. Decreased testing time to obtain FSIQ and primary index scores.
10. Brief instructions, using developmentally appropriate language.

WISC-V

Traditional Format
Paper/Pencil

Digital Format on Q-interactive

Handscore
Q-global
Scoring & Reporting

Scoring Options

Automatic Scoring & Reporting via Q-interactive

• Score Report
• Combination
• Narrative
• Immediate scaled scores

WISC-V Revision Goals
• Update theoretical foundations
• Increase user friendliness
• Increase developmental appropriateness
• Improve psychometric properties
• Enhance clinical utility

What do these revision goals really mean?

1. Update Theoretical Foundations

• Increase breadth of construct coverage by investigating and 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

Importance of Working Memory

• Working memory is important to the measure of cognitive functioning
  - related to fluid reasoning (Burgess & Braver, 2010; Hornung, 2011; Martinez et al., 2011)
  - implicated in a wide variety of academic problems and clinical conditions affecting children and adolescents (e.g., Archibald & Gathercole, 2006a, 2007; Borella, Caretti, & Pellegrina, 2010; Hutchinson, Bavin, Efron, & Sciberras, 2012; Fitzpatrick & Pagini, 2012)
2. Increase Developmental Appropriateness

- Instructions
  - Reduce vocabulary level, verbosity
    - Ceiling items on Similarities
    - “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- Replace outdated art and items with more current and relevant

3. Increase User Friendliness

- Reduce testing time
  - FSIQ subtests does not include all Primary Index subtests
  - Provide testing time for various percentages of normative sample by age and special group samples to complete each subtest

Reduced Testing Time

- 5 primary index scores: 65 minutes mean
  - (10 minutes shorter than WISC-V mean)
- FSIQ: 48 minutes mean
  - (27 minutes shorter than WISC-V mean)
- Shorter discontinue rules, fewer items, selecting subtests with briefer admin time to contribute to these scores

4. Improve Psychometric Properties

- Items and scoring rules
- Norms and norming method
- Maintain or improve reliability
- Floors and ceilings
- Reevaluate item bias
  - Iterative psychometric analyses
  - Qualitative reviews by experts

WISC-V Normative Sample

11 age groups | n = 200 per group

| Total n = 2,200 |
| Nationally Stratified Sample | Age; Sex Race/Ethnicity; PEL Geographic Region |
WISC-V Normative Sample and Special Education Population

<table>
<thead>
<tr>
<th>Special Education Classification</th>
<th>Normative Sample</th>
<th>U.S. Population</th>
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Evidence of Internal Consistency

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<tr>
<th>Composite</th>
<th>Overall Average ($r_{xx}$)</th>
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<tr>
<td>VCI</td>
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</tr>
<tr>
<td>VSI</td>
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<tr>
<td>FRI</td>
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<td>GAI</td>
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Standard Errors of Measurement

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Evidence of Test-Retest Stability – Composite Scores

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<td>CPI</td>
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Relations with Other Measures

**Ability**
- WISC–IV
- WPPSI–IV
- WAIS–IV
- KABC–II

**Achievement**
- KTEA–3
- WIAT–III

**Adaptive Behavior**
- Vineland–II

**Behavior**
- BASC–2 Parent Rating Scales

Special Group Studies

- Intellectually Gifted
- Intellectual Disability-Mild Severity
- Intellectual Disability-Moderate Severity
- Borderline Intellectual Functioning
- Specific Learning Disorders
- Attention-Deficit/Hyperactivity Disorder
- Disruptive Behavior
- Traumatic Brain Injury
- English Language Learners
- Autism Spectrum Disorder
5. Enhance Clinical Utility

- Provide subtests to measure cognitive processes known to be clinically sensitive to learning disabilities to enhance pattern of strengths and weaknesses (PSW) approach to learning disability evaluation
  - Rapid Naming
  - Paired Associates (Verbal-Visual)
- Provide "PSW" link in joint software with WIAT-III and KTEA-3
  - Also offered together with the WISC-V Integrated for those customers

Enhance Clinical Utility (cont’d)

- Revise special group studies based on use
  - Drop ELD and RELD groups
  - Add special group studies
    - Borderline Intellectual Functioning
    - Disorder of Written Expression
    - Nonverbal Learning Disability

Enhance Clinical Utility (cont’d)

Composite Score Changes

- Full Scale IQ
  - Does not include all primary index-score subtests
  - Quicker to obtain
- Five, factor-based Primary Index Scores
  - Verbal Comprehension Index, Visual Spatial Index, Fluid Reasoning Index, Working Memory Index, Processing Speed Index

Enhance Clinical Utility (cont’d)

- Test structure
  - Provide factor structure that simplifies interpretation (PRI→VSI/FRI)
  - 5 factor-based Primary Index Scores
  - Similar to WPPSI-IV upper age range
- Score differences comparison methodology
  - Both index- and subtest-level: Strengths and weaknesses then pairwise

Enhance Clinical Utility (cont’d)

- Ancillary Index Scores
  - General Ability Index (GAI)
  - Cognitive Proficiency Index (CPI)
  - Nonverbal Index (NVI)

Enhance Clinical Utility (cont’d)

- New methods for strength and weakness analysis
  - Strengths and weaknesses across the different primary index domains can be evaluated using an estimate of overall ability (i.e., the mean primary index score or the FSIQ) as a comparison score
Dropped WISC–IV Subtests

- **Word Reasoning**
  - Redundant measure of verbal comprehension (high correlation with Information)

- **Picture Completion**
  - Construct not as representative of visual spatial ability as others (secondary verbal loading)

- And we needed the space for new subtests...

Changes: New Subtests

- **Visual Spatial Index**
  - Visual Puzzles
  - Digit Span Sequencing added to Digit Span

- **Fluid Reasoning Index**
  - Figure Weights

- **Working Memory Index**
  - Picture Span

- **Complementary Subtests**
  - Naming Speed Literacy
  - Naming Speed Quantity
  - Immediate Symbol Translation
  - Delayed Symbol Translation
  - Recognition Symbol Translation

Subtest Types

- **Primary**
  - 10 subtests to obtain FSIQ and 5 Primary Index

- **Secondary**
  - Can substitute in FSIQ
  - Load into Ancillary Index scores

- **Complementary**
  - New subtests of long-term storage & retrieval
  - Load into Complementary Index Scores

Subtest Types and Categories

<table>
<thead>
<tr>
<th>Subtest</th>
<th>Score Type</th>
<th>Category</th>
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<tbody>
<tr>
<td>Information</td>
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<td>Secondary</td>
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<tr>
<td>Picture Concepts</td>
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<td>Letter-Number Seq</td>
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<td>Digit Span</td>
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<td>Immediate Symbol Translation</td>
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<td>Delayed Symbol Translation</td>
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<td>Recognition Symbol Translation</td>
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<td>Naming Speed Quantity</td>
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<tr>
<td>Recognition Symbol Translation</td>
<td>Standard</td>
<td>Complementary</td>
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</table>
Changes to Retained Verbal Comprehension Subtests

- Information
- Similarities
- Vocabulary
- Comprehension
  - Stimulus Book eliminated on Vocabulary
  - Revised scoring rules with data-based queries
  - New, contemporary item content

EX: Why do some teachers not allow students to use their cell phones during class?

Changes to Retained “Perceptual Reasoning” Subtests

- Block Design
  - New complex designs
    - Diamond & X-shaped
  - Evaluating new process scores
    - Partial Score
    - Simplified Break in Configuration Error Score

Changes to Retained “Perceptual Reasoning” Subtests

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

Changes to Retained Working Memory Subtests

- Letter-Number Sequencing
  - Eliminated rhyming letters and numbers
  - Teaching modified for floor
    - 1st teach numbers before letters,
    - then teach reordering task

Changes to Retained WISC-IV Working Memory Subtests

- Arithmetic
  - New and revised items
  - 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 WISC-IV Working Memory Subtests

- Digit Span
  - Added trials to Forward ceiling
  - Added some trials for gradient
  - Added new Sequencing task

Changes to Retained Processing Speed Subtests

- Coding
  - Item difficulty consistent across rows
  - Changed symbols for digits

Changes to Retained Processing Speed Subtests

- Symbol Search
  - New symbols
  - Evaluating error scores

Sample Items:

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Changes to Retained Processing Speed Subtests

- Cancellation
  - New art
  - Designed by quadrant (target to distracter ratio)

New Subtests

- Visual Spatial subtest
  - Visual Puzzles
    - Allows separation of WISC–IV Perceptual Reasoning Index into Visual Spatial and Fluid Reasoning Indexes

- Fluid Reasoning subtest
  - Figure Weights
    - Measures quantitative fluid reasoning

- Working Memory subtest
  - Picture Span
    - Measures visual working memory

Subtest Changes: New

- Complementary Subtests
  - Naming Speed Literacy
  - Naming Speed Quantity

  - Immediate Symbol Translation
  - Delayed Symbol Translation
  - Recognition Symbol Translation
**Visual Puzzles**
- Child views a completed puzzle and selects three response options that would combine to reconstruct the puzzle
- Item time limit of 30 seconds
- Measures ability to analyze and synthesize abstract information

**Figure Weights**
- Child views scale with missing weight(s) and selects the response option that balances the scale
- 20" or 30" time limit
- Measures quantitative and analogical fluid reasoning

**Picture Span**
- Child views one or more pictures, then selects them in sequential order from a larger picture array
- Two points for correct pictures in correct order; one point for correct pictures in incorrect order
- Simple visual span task with proactive interference
- Research indicates proactive interference increases processing demands of working memory tasks

**Naming Speed**
- Child names elements as quickly as possible
- Child takes two or three tasks, depending on age
- Each task has a sample item and a 2-page test item
- Does not contribute to any composite scores
- Current rapid naming tasks are relatively less sensitive to math disability if comorbid reading disability excluded (Korkman, Kirk, & Kemp, 2007; Pauly, Linkersdörfer, Lindberg, Woerner, Hasselhorn, Lonnemann, 2011; Willburger, Fussenegger, Moll, Wood, & Landerl, 2008)
- Quantity naming added to improve sensitivity to math disability (Pauly et al., 2011; Willburger et al., 2008)
Symbol Translation
Immediate Recall
Delayed Recall

- Child learns associations between symbols and words and is then asked to translate symbol strings
  - Immediate and Delayed subtests
- Immediate subtest teaches visual-verbal associations in a stepwise manner, with repetition of associations introduced in previous steps
  - Includes only a recall task
- Delayed subtest administered 20 to 30 minutes after completion of Immediate subtest
  - Includes both recall and recognition tasks

Symbol Translation
Recognition

- Child views a symbol and selects the associated word from the response options
  
  O-O
  
  “What does this one mean?”
  A. Mom
  B. Us
  C. People
  D. Man

Test Structure – Full Scale IQ

Primary Index Scores

<table>
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<tr>
<th>Primary Index Scores</th>
<th>VCI</th>
<th>VSI</th>
<th>FRI</th>
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Perceptual Reasoning Index (PRI) Replaced

CFA Model

- V Factor
- Arithmetic on Fluid Reasoning, Crossloading on Working Memory
New Ancillary Indexes to WISC-V

**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.

**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.
- Scoring criteria for all retained verbal items were revised.
- Words are read aloud for verbal items – no words on stimulus book.

**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.

**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.
- Removal of word “advantages”
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 Dimension Errors
- Max dimension for a square- or diamond-shape is exceeded *any time during construction*
- For example, 3 blocks in a row for a 2x2 design
- Only penalize uncorrected errors
- Record a D next to the grid for process score

Process Scores
- No Time Bonus
- Design Partial
  - Number of correctly placed blocks
- Rotation Errors
- Dimension Errors

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 and Scoring Manual
  - Record Form
  - Stimulus Book 1

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

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

FW Start Points
- Start
  - Ages 6–8: Sample Item A, then Item 1
  - Ages 9–16: Sample Item B, then Item 4
  - Use clinical judgment to start with Sample Items A & B, then Item 1, regardless of age.

FW 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.
FW Timing

- The time limit for Items 1–18: 20 seconds
- The 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.

FW Scoring

- 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

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

Coding (CD)

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

Symbol Search (SS)

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

- Form A has 40 items, all new.
- Form B has 60 items, all new.

SS Scoring – Set and Rotation Errors

- If desired, record the number of set and rotation errors in the spaces labeled S (Set) and R (Rotation) at the bottom left corner of each page of the Response Booklet.
SS Record Form

10. Symbol Search

<table>
<thead>
<tr>
<th>Task</th>
<th>Pattern</th>
<th>Correct</th>
<th>Total Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cancellation (CA)

- Working within a specified time limit, the child scans two arrangements of objects (one random, one structured) and marks target objects.
- Consists of 2 items: Random arrangement and Structured arrangement, both revised.

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.

DS Start Rules

- **Forward**: Ages 6-16: Item 1
- **Backward**: Ages 6-16: Sample Item, then Item 1
- **Sequencing**: Ages 6-7: Qualifying Item, Sample Items A & B, then Item 1; Ages 8-16: Sample Items A & B, then Item 1

DS Discontinue Rules

- **Forward**: Ages 6-16: Discontinue after scores of 0 on both trials of an item.
- **Backward**: Ages 6-16: Discontinue after scores of 0 on both trials of an item.
- **Sequencing**: Ages 6-7: Discontinue after an incorrect response to the Qualifying Item OR after scores of 0 on both trials of an item.
  - Ages 8-16: Discontinue after scores of 0 on both trials of an item.

Picture Span (PS)

- New Working Memory subtest
- Consists of 26 test items
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

PS Start Rules

Start
- Ages 6-16: Sample Items B & C, then Item 4
- Children suspected of having an intellectual disability or low cognitive ability should start with Sample Item A, then Item 1.

PS Reverse & Discontinue Rules

Reverse
- If a child aged 6–16 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.

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.

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.

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.
- 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.

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

NSL - Starting Points

- Start

- Age 6
  - Demonstration Item A, Sample Item A, then Item 1

- Ages 7–8
  - Demonstration Item B, Sample Item B, then Item 2

- Ages 9–16
  - Sample Item C, then Item 3

Children suspected of having an intellectual disability or low cognitive ability should be given the items corresponding to their chronological age.

Naming Speed Literacy

- Color-Object Naming (age 6)
  - 9 G T 8 Y

- Size-Color-Object Naming (age 6–8)
  - Z S A 3 1

- Letter-Number Naming (ages 7–16)
**NSL - Stopping Points and Timing**

Step

Age 6
After administration of Item 2, Trial 2

Ages 7–16
After administration of Item 3, Trial 2

Timing

The time limit for each trial is 300 seconds (5 minutes). Accurate timing is essential. Begin timing for each trial after saying the last word of instruction.

Stop timing when the child completes the trial or the time limit expires.

---

**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.

---

**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.

---

**NSL – Recording and Scoring Responses**

**Table 2.1** Common Synonyms for Naming Speed Attributes

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Common Synonyms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dog</td>
<td>Doggie; Puppie</td>
</tr>
<tr>
<td>Car</td>
<td>Truck</td>
</tr>
<tr>
<td>Duck</td>
<td>Ducky; Bird</td>
</tr>
<tr>
<td>Big</td>
<td>Large; Huge; Giant; Tall</td>
</tr>
<tr>
<td>Linle</td>
<td>Small; Tiny; Tiny; Short</td>
</tr>
</tbody>
</table>

**Figure 3.9** Example of Recording Only-Color-Object Errors When Multiple Attributes of a Single Element are Misnamed

---

**How do I score NSL?**

**Trial 1 Completion Time**

**Trial 2 Completion Time**

Total Block Score (Maximum = 600)

**Trial 1 Completion Time**

**Trial 2 Completion Time**

Total Block Score (Maximum = 600)
How do I score NSL?

- Self Corrections
- Completed responses
- Record completion time in seconds

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

Naming Speed Quantity

Research suggests a relationship between Naming Speed Quantity and difficulties in math.

<table>
<thead>
<tr>
<th>1-4 (age 6)</th>
<th>1-5 (ages 7-16)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NSQ - Starting Points

Start

Age 6
Sample Item A, then Item 1

Ages 7-16
Sample Item B, then Item 2

Children suspected of having an intellectual disability or low cognitive ability should be given the item corresponding to their chronological age.

NSQ - Stopping Points and Timing

Stop

Age 6
After administration of Item 1, Trial 2

Ages 7-16
After administration of Item 2, Trial 2

Timing

The time limit for each trial is 300 seconds (5 minutes). Accurate timing is essential. Begin timing for each trial after saying the last word of instruction. Stop timing when the child completes the trial or the time limit expires.
**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.

**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

**NSQ - Recording and Scoring Responses**

<table>
<thead>
<tr>
<th>Item</th>
<th>SB</th>
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<th></th>
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<tr>
<td>Item</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

*Equals 1 error and 1 SC*

**Scoring Reminders**

- Self Corrections
- Completed responses
- Record completion time in seconds
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

**Tell me what each one means.**

A man is on a boat.

ISTA - Starting and Discontinue Points

- **Start**
  - Ages 6–16
  - Item 1

- **Discontinue**
  - Discontinue if the child’s cumulative raw score is less than or equal to the specified value at decision point ☐, ☐, or ☐.

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-corrections 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.

ISTA - 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.
- Up until Item 4, errors are corrected if fail Trial 2 administration
  - No need to administer T2 if T1 correct
  - Record the subtest stop time if Delayed Symbol Translation or Recognition Symbol Translation will be administered
**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

**Delayed Symbol Translation (DST))**

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

**DST – Scoring Reminders, Start, Discontinue Points**

**DST – Stopping Points and Timing**
**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.

**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.

**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

**DST– Recording and Scoring**

**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 Start & Discontinue**

- Start
  - Ages 6–16
  - Item 1
- Discontinue
  - Discontinue at the same decision point as Immediate Symbol Translation (e.g., ②, ⑤, or ⑧). If the child did not discontinue on Immediate Symbol Translation, do not discontinue.
**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

**Q-interactive**
Digital system for individually-administered tests consisting of two primary components

**CENTRAL:**
Secure, browser-based function for generating client profiles, building test batteries, creating assessment sessions, and sharing results.

**ASSESS:**
Application that lets an examiner administer a test via two tablets connected by Bluetooth.

**Q-interactive Components of Assess**
- Practitioner
- Client

**Assess Sample Home Screen**
- Clinician Device – Your manual, record form, scoring
Manual Content via Button

Verbatim Prompts via Button

Subtest Instruction Card

Organized Notes

Support Tab – includes key materials

Choosing Start Points

WISC-V Fall 2014
Discontinue Points Built In

Immediate Scores Available

Subtest Results in Central

Composite Results

Comparison Results

Item Level Responses
Generating reports out of Central
Step 1 – Select “Create Report”

Generating reports out of Central
Step 1 – Enter settings

Generating reports out of Central
Step 3 – Download report from browser

WISC-V Scoring Options
Q-interactive = Automatic Scoring
No Additional Fee

Q-Global Scoring and Reporting
(paper and pencil)
Per use and unlimited use
Options available
Hand-score (paper and pencil)

Rules are Simplified

FSIQ
Is the only score where substitution is permitted

Simplified Rules
• NO Proration for anything but FSIQ
• In calculation of FSIQ; May prorate to 6 subtests
• Can EITHER prorate FSIQ with 6 subtests OR can substitute 1 subtest. CANNOT DO BOTH
**Substitution and Proration = No More “Core” and “Supplemental”**

<table>
<thead>
<tr>
<th>FSIQ Subtest</th>
<th>Allowable Substitutions for Deriving the FSIQ*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Similarities</td>
<td>Information or Comprehension</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>Information or Comprehension</td>
</tr>
<tr>
<td>Block Design</td>
<td>Visual Concepts</td>
</tr>
<tr>
<td>Matrix Reasoning</td>
<td>Picture Concepts</td>
</tr>
<tr>
<td>Figure Weights</td>
<td>Picture Concepts or Arithmetic</td>
</tr>
<tr>
<td>Digit Span</td>
<td>Picture Span or Letter-Number Sequencing</td>
</tr>
<tr>
<td>Coding</td>
<td>Symbol Search or Cancellation</td>
</tr>
</tbody>
</table>

- Only one sub OR pro on FSIQ
- No subs or pros on any index score
- Less necessary with the expanded composite score options

**Maximum Number of Raw Scores = 0 Permitted is:**

FSIQ = FOUR out of SEVEN

Primary Index Scores = 1 out of 2

Ancillary Index Scores (QRI, AWMI) = 1 out of 2

NVI = 3 out of 6

GAI = 3 out of 5

CPI = 2 out of 4

STI = 2 out of 3

**Descriptive Classifications**

<table>
<thead>
<tr>
<th>Composite Score Range</th>
<th>WISC–V Descriptive Classification</th>
<th>Traditional Descriptive Classification (“Old”)</th>
</tr>
</thead>
<tbody>
<tr>
<td>130 and above</td>
<td>Extremely High</td>
<td>Very Superior</td>
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<tr>
<td>120–129</td>
<td>Very High</td>
<td>Superior</td>
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<tr>
<td>110–119</td>
<td>High Average</td>
<td>High Average</td>
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<tr>
<td>90–109</td>
<td>Average</td>
<td>Average</td>
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<tr>
<td>80–89</td>
<td>Low Average</td>
<td>Low Average</td>
</tr>
<tr>
<td>70–79</td>
<td>Very Low</td>
<td>Borderline</td>
</tr>
<tr>
<td>69 and below</td>
<td>Extremely Low</td>
<td>Extremely Low</td>
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</tbody>
</table>

**WISC–V Score Summary**

<table>
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<tr>
<th>Subtest</th>
<th>Scaled Score</th>
<th>Standard Score</th>
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<td>Auditory</td>
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Scaled and Standard Process Scores

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<tr>
<td>Naming Speed Site-Color Object</td>
<td>NSsco</td>
<td>Standard</td>
</tr>
<tr>
<td>Naming Speed Letter-Number</td>
<td>NSsn</td>
<td>Standard</td>
</tr>
</tbody>
</table>

Process Scores

- Scaled/Standard process score examples:
  - points awarded for each block correctly placed
  - points from only the Digit Span Forward items

- Raw process score examples:
  - number of digits on the last correctly completed trial
  - the number of items with rotation errors on Block Design
  - the number of times the child indicates he or she doesn’t know the answer to an item

Contrast Scores

- Provide information about performance on a task of interest in comparison to other children who scored at the same level on a related task
- 6 in total (example: DSF vs. DSB)
- Not on Record Form
- Appendix C in Technical and Interpretive Manual

Basic Steps to Interpretation

- Report & describe FSIQ
- Report and describe Primary Index Scores
  - VCI
  - VSI
  - FRI
  - WMI
  - PSI

Verbal Comprehension Index

- Ability to access and apply acquired word knowledge.
- Verbal concept formation, reasoning, and expression
- REMEMBER - All of the items from subtests that contribute to this index, even the picture items, are presented verbally; and the child verbalizes a response in the majority of cases.

Verbal Comprehension Index

Changes from 4th ed
- VCI does not include Comprehension, which was included in the WISC-IV VCI.
- The W5 VCI emphasizes reasoning using word knowledge to a greater extent than general information such as practical knowledge, judgment, and personal experiences.
**Verbal Comprehension Index**

- Conceptually, the VCI can be viewed as a more refined, purer measure of verbal concept formation, verbal reasoning, and fund of knowledge
  - Less emphasis on specific practical knowledge, judgment, and personal experiences as compared to the WISC-IV VCI.
  - Expressive language skills are less prominent with Comprehension not contributing to the index

**Visual Spatial Index**

Changed from 4th ed

- Relative to the WISC-IV PRI, the VSI emphasizes visual-perceptual and visual-spatial reasoning more than conceptual reasoning.
- The VSI on W5 has increased emphasis on the integration of part-whole relationships, spatial processing, and speeded performance.

**Fluid Reasoning Index**

Changes from 4th ed

- Relative to the WISC-IV PRI, the FRI has increased emphasis on inductive and quantitative reasoning, and has reduced emphasis on object recognition, classification ability, integration of part-whole relationships, spatial processing, visual-motor integration, and speeded performance.
- FRI emphasizes abstract conceptual reasoning, more than construction abilities requiring visual-perceptual integration and visual-spatial reasoning.

**Highlights of Interpretation: VSI vs FRI**

- VSI = architect
  - reasoning task because the solutions require more than simply matching a part to a part in the design.
  - Mental rotation and visualization of the solution is required which is why it is more architect than just construction site manager.

- FRI = detective
  - Use visual information to identify a common theme or concept.
  - visual information does not directly provide a solution to the problem rather the relationship among visual-spatial elements provides clues as to the single underlying concept that binds them all together.
  - Once the examinee figures out the underlying conceptual link must be able to apply that knowledge to identify the correct solution
**Working Memory Index**

Changes from 4th ed

- The subtest composition of the WMI is different than that of the WISC–IV WMI.
  - Only Digit Span is a common subtest.
  - Letter–Number Sequencing does not contribute
  - Picture Span, a new subtest, now contributes
- Relative to the WISC–IV WMI, the WMI has increased emphasis on visual working memory and proactive interference, and has reduced emphasis on verbal working memory.

**Processing Speed Index**

Changed from 4th ed

- Compared to the WISC–IV, the same subtests contribute to the PSI (Coding and Symbol Search)
- Both of these subtests have been redesigned to more evenly balance item difficulty across the task rather than to gradually increase difficulty as the item progressed.
- Coding was also redesigned to eliminate the need to lift the pencil when writing a single symbol.

**Quantitative Reasoning Index**

- Derived from the Figure Weights and Arithmetic subtests
- Indicator of the child’s quantitative reasoning skills.
  - Closely related to general intelligence
- Assessing quantitative reasoning assists in more accurately predicting both reading and mathematics achievement scores, creativity, future academic success, success in gifted programs, professional examination performance, and future educational attainment

**Auditory Working Memory Index**

- Digit Span and Letter–Number Sequencing subtests
- An indicator of the child’s auditory working memory skills and the ability to resist proactive interference
- Subtest composition of the AWMI is identical to that of the WISC–IV WMI
  - However, the AWMI has increased emphasis on sequencing and mental manipulation, as the Sequencing task was added to Digit Span for the WISC–V.
Auditory Working Memory Index

- Popular working memory models conceptualize domain-specific systems of working memory
  - the phonological loop for verbal information
  - the visual-spatial sketchpad for visual and spatial information
- The domain-specific storage components appear to be distinct in children in the WISC–V age range and to show differential sensitivity to various clinical conditions.

Nonverbal Index

- Derived from the sum of 6 subtest scaled scores from tasks that do not require any verbal responses.
- Includes subtests from all of the primary cognitive domains that contribute to the FSIQ except for Verbal Comprehension.
- Should not be conceptualized as a language-free measure. It is more accurately described as “language reduced” (Ortiz et al., 2012) because it is derived from subtests that require the child to comprehend instructions in English.

General Ability Index

- Based on the Verbal Comprehension, Visual Spatial and Fluid Reasoning subtests that contribute to the FSIQ.
- Conceptually, the GAI provides an estimate of general intellectual ability that is less reliant on working memory and processing speed relative to the FSIQ.

Using GAI and CPI

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

Cognitive Proficiency Index

- Provides an estimate of the efficiency with which cognitive information is processed in the service of learning, problem solving, and higher order reasoning.
- Working memory involves identification, registration, and manipulation of information in short-term memory storage and processing speed relates to rapid identification and registration of information in short-term memory for decision-making.

GAI vs. FSIQ

- GAI can be compared to the FSIQ to assess the effects of a weakness in cognitive proficiency on the child’s overall cognitive functioning.
- GAI > FSIQ suggests that the estimate of overall ability is impacted by the inclusion of working memory and processing speed tasks, and that these may represent areas of processing weakness.
- FSIQ > GAI discrepancy suggests that working memory and processing speed are strengths that bolster the child’s overall intellectual ability.
GAI vs. FSIQ

- Small GAI–FSIQ differences may be meaningful on the WISC–V.
  - GAI and the FSIQ share subtest content, differing by only two subtests.
  - By comparison, there are four subtests unique to the WISC–IV FSIQ relative to its GAI.
  - Therefore, smaller differences between the GAI and the FSIQ are meaningful & significant on the WISC–V than on the WISC–IV.

GAI vs. CPI

- CPI includes supplemental working memory and processing speed subtests not included in the FSIQ and thus provides broader construct coverage of cognitive proficiency.
- GAI > CPI has been reported for children with epilepsy, ADHD–Inattentive type, specific learning disorder, intellectual disability–mild, traumatic brain injury, & motor impairment.
- CPI > GAI discrepancy suggests that abilities that facilitate cognitive processing efficiency may be a strength in comparison to higher-order cognitive abilities.

WMI vs. AWMI

- This comparison can provide information about the impact of domain specificity (i.e., auditory and visual) on the estimate of working memory.
- WMI > AWMI discrepancy suggests that presenting information visually may improve working memory functioning compared to auditory presentation of information.
- AWMI > WMI discrepancy suggests auditory presentation of information may improve working memory functioning relative to visual presentation.

Report and Describe Complementary Scores

- Similar tasks are associated with mathematics skills and achievement, and show sensitivity to specific learning disability in mathematics.
- These tasks are also sensitive to a wide variety of other neurodevelopmental conditions such as ADHD, language disorders in both monolingual and bilingual children, and autism spectrum disorders.

Report and Describe NSI

- NSI provides a broad estimate of automaticity of basic naming ability drawn from a variety of tasks.
- These tasks were developed to enhance the assessment of children with suspected learning disabilities and are not designed as measures of intellectual functioning.
- Similar tasks are closely associated with reading and spelling skill development, with reading achievement, and have shown sensitivity to specific reading disability in reading.

**Report and Describe NSI**
- High scores on this index indicate a high degree of naming automaticity and rapid, efficient verbal retrieval abilities.
- Low scores may occur for many reasons including 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 NSL and NSQ comparison is important.

**Report and Describe STI**
- STI provides a broad estimate of visual-verbal associative memory drawn from a variety of conditions.
- Visual-verbal associative memory tasks are closely associated with reading decoding skills, word reading accuracy and fluency, text reading, and reading comprehension.
- Furthermore, they are sensitive to dyslexia when they require verbal output.
- Visual-verbal associative memory tasks are also related to math calculation skills and math reasoning.

**Report and Describe STI**
- These measures were developed to enhance the assessment of individuals suspected of having learning problems or declarative memory impairment.
- These tests were not developed as measures of intellectual ability.
- High scores on this index indicate well developed encoding and retrieval of newly learned visual-verbal associations after short and long delays.

**Report and Describe STI**
- Low scores may occur on this index for many reasons including visual or verbal processing deficits, inattention, distractibility, poor information encoding, difficulties accessing information from memory, rapid forgetting, or general memory impairment.
- Pairwise discrepancies between IST–DST, IST–RST, and DST–RST should be consulted to gain further understanding of the score and what it means.

**Report and Describe SRI (Storage & Retrieval)**
- SRI provides a broad estimate of long-term storage and retrieval accuracy and fluency derived from a variety of tasks designed to assess cognitive processes that are associated with reading, mathematics, and writing skills, and have shown sensitivity to specific learning disabilities and other clinical conditions.
- Long-term storage and retrieval, as a broad construct, is related to reading, math, and writing skills.

**Ancillary/Complementary Subtest-Level Pairwise Comparisons**
Naming Speed Literacy and Naming Speed Quantity

- Literacy tasks utilize stimuli that are traditional within rapid naming task paradigms (i.e., colors, objects, letters, and numbers) that have shown sensitivity to reading and written expression skills and to specific learning disabilities in reading and written expression.
- The Naming Speed Quantity subtest is similar to tasks in the experimental literature that show greater sensitivity to mathematics skills and specific learning disability–mathematics than do the traditional tasks that are more closely associated with reading- and writing-related variables.

Scaled/Standard Process Scores

<table>
<thead>
<tr>
<th>Process Score</th>
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<td>Naming Speed Color-Object</td>
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Longest Span Process Scores

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<td>Longest Digit Span Sequence</td>
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<td>Longest Picture Span Response</td>
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<td>Naming Speed Quantity Errors</td>
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Process Observations

- Don’t Know Responses
- No Response
- Item Repetition & Requests for Repetition
- Subvocalization
- Self-correction

Are the Wechsler Scales Based on Theory?

- Wechsler described a general aspect of intelligence that is composed of qualitatively different abilities (Coalson et al.)
- Selected measures of cognitive ability that later were found to be important according to contemporary structural models of intellect (Carroll, 1993, 2012).
Are the Wechsler Scales Based on Theory?

- Wechsler embraced the use of alternate composite scores based on factor-analytic research (see Cohen, 1957, 1959; Kaufman, 1975) and evidence from clinical studies indicating their utility in differential diagnosis (Coaison et al.; Wechsler, 1958).

And, the scales are evolving-

WISC-V and CHC?

- WISC-V development significantly influenced by research in child development and neurocognitive processing models
  - Guided by clinical research and factorial data

- CHC not the primary basis, but may be applied

### WISC-V and CHC XBA Applications

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<tr>
<th>Broad Ability</th>
<th>Narrow Ability</th>
<th>Primary Narrow Abilities</th>
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<tr>
<td>Gc</td>
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<td>VL (Lexical Knowledge)</td>
<td>Vocabulary</td>
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<td>Flr</td>
<td>FI (Ideational Fluency)</td>
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<tr>
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<td>GC (Phonetic Coding)</td>
<td>KTEA3 Phonological Awareness</td>
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