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. Briefer instructions, using developmentally appropriate language.

WISC-V

Traditional Format
Paper/Pencil

Digital Format on Q-interactive

Scoring Options

Handscor

Q-global

Scoring & Reporting

Automatic Scoring & Reporting on Q-interactive

• Score Report
• Combination
• Narrative
• Testbook

Measuring abilities

…the attributes and factors of intelligence, like the elementary particles in physics, have at once collective and individual properties, that is, they appear to behave differently when alone from what they do when operating in concert.

--- Wechsler (1975)

Wechsler’s View of Intelligence

"The global capacity of a person to act purposefully, to think rationally, and to deal effectively with his/her environment."


Measuring abilities

What we measure with tests is not what test measure – not information, not spatial perception, not reasoning ability. These are only a means to an end. What intelligence tests measure is something much more important: the capacity of an individual to understand the world around him and his resourcefulness to cope with its challenges.

--- Wechsler (1975)
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

- Consideration of current
  - Structural Intelligence Models
  - Neurodevelopmental & Neurocognitive research
  - Working Memory Models & research

Neurodevelopment

Development:
- Myelination
- Aborization
- Neural pruning

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Neurodevelopment

Neurodevelopment & Specific Cognitive Abilities:
- Localization for abilities (verbal, spatial, fluid, working memory, processing speed)
- Importance of frontal lobes

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Importance of Working Memory

- Working memory is important to the measure of cognitive functioning
  - related to fluid reasoning
  - implicated in a wide variety of academic problems and clinical conditions affecting children and adolescents
  - Proactive Interference
    - A previously viewed item interferes with memory for the present item
- Multi-component model

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
2. Increase Developmental Appropriateness

- Instructions
  - Reduce vocabulary level, verbosity
  - “Advantages” and other high vocabulary level of items on Comprehension
  - Demonstrate, practice, and teach the task
  - Instructions contain fewer words; less time to present

- Scoring criteria
  - Emphasis on response meaning; not precise content

- Time bonuses
  - Reduced items with bonuses on BD

3. Increase User Friendliness

- Item security
- Materials
  - Scoring templates
- Directions
  - More explicit & simpler
  - For example, invalidation, proration & substitution rules

- Discontinue rule
  - 3 consecutive scores of 0 on primary tests

- Overall Testing time

Reduced Testing Time

- FSIQ subtests does not include all Primary Index subtests
- 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

- Norms and norming method
- Maintain or improve reliability & validity
- Improved floors and ceilings
- Reevaluate item bias
  - Iterative psychometric analyses
  - Qualitative reviews by experts

- 4 significance level options instead of 2

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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</thead>
<tbody>
<tr>
<td>Developmental Delay</td>
<td>0.6</td>
<td>0.7</td>
</tr>
<tr>
<td>Intellectual Disability</td>
<td>1.6</td>
<td>0.9</td>
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<tr>
<td>Specific Learning Disability</td>
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<td>4.9</td>
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<tr>
<td>Speech/Language Impairment</td>
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<td>2.9</td>
</tr>
<tr>
<td>Attention-Deficit/Hyperactivity Disorder</td>
<td>1.1</td>
<td>5.0</td>
</tr>
<tr>
<td>Gifted and Talented</td>
<td>1.7</td>
<td>6.7</td>
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### Evidence of Internal Consistency

<table>
<thead>
<tr>
<th>Composite</th>
<th>Overall Average (rxx)</th>
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<tbody>
<tr>
<td>VCI</td>
<td>.92</td>
</tr>
<tr>
<td>VSI</td>
<td>.92</td>
</tr>
<tr>
<td>FRI</td>
<td>.93</td>
</tr>
<tr>
<td>WMI</td>
<td>.92</td>
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<tr>
<td>PSI</td>
<td>.88</td>
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<tr>
<td>FSIQ</td>
<td>.96</td>
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<tr>
<td>QRI</td>
<td>.95</td>
</tr>
<tr>
<td>AWMI</td>
<td>.93</td>
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<tr>
<td>NVI</td>
<td>.95</td>
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<tr>
<td>GAI</td>
<td>.96</td>
</tr>
<tr>
<td>CPI</td>
<td>.93</td>
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### Standard Errors of Measurement

<table>
<thead>
<tr>
<th>Composite</th>
<th>Overall Average SEM</th>
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<tr>
<td>VCI</td>
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<tr>
<td>VSI</td>
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<td>CPI</td>
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### Evidence of Test-Retest Stability – Composite Scores

<table>
<thead>
<tr>
<th>Composite</th>
<th>First Testing</th>
<th>Second Testing</th>
<th>Standard Difference</th>
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<td>.17</td>
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<tr>
<td>PSI</td>
<td>100.3</td>
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<tr>
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<td>CPI</td>
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<td>105.5</td>
<td>.43</td>
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</table>

### 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
- Test structure
  - Provide factor structure that simplifies interpretation (PRI → VSI/FRI)
  - 5 factor-based Primary Index Scores
    - Verbal Comprehension Index, Visual Spatial Index, Fluid Reasoning Index, Working Memory Index, Processing Speed Index
  - Similar to WPPSI-IV upper age range
- Full Scale IQ
  - Does not include all primary index-score subtests
Enhance Clinical Utility (cont’d)

- Ancillary Index Scores
  - General Ability Index (GAI)
  - Cognitive Proficiency Index (CPI)
  - Nonverbal Index (NVI)
- 13 special group studies
- Statistical link to WIAT-III and KTEA-3

5. Enhance Clinical Utility

Complementary subtests

- 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)

Enhance Clinical Utility

- 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
  - Both index- and subtest-level: Strengths and weaknesses then pairwise

5. Enhance Clinical Utility

- Replace outdated art and items with more current and relevant
- Redesign Processing Speed subtests
  - Error analysis
  - Digital adaptability
- New Process scores
  - 10 scaled scores on 4 subtests
  - Longest span & sequence
  - Error scores
  - Process observations

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

<table>
<thead>
<tr>
<th>Visual Spatial Index</th>
<th>Fluid Reasoning Index</th>
<th>Working Memory Index</th>
<th>Complementary Subtests</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

- Visual Puzzles
- Figure Weights
- Picture Span
- Digit Span
- Sequencing added to Digit Span
- Immediate Symbol Translation
- Delayed Symbol Translation
- Immediate Symbol Translation
- Delayed Symbol Translation
- Immediate Symbol Translation
- Delayed Symbol Translation
Subtest Types

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

- **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>
</tr>
</thead>
<tbody>
<tr>
<td>Block Design</td>
<td>Scaled</td>
<td>Primary (FSIQ)</td>
</tr>
<tr>
<td>Similarities</td>
<td>Scaled</td>
<td>Primary (FSIQ)</td>
</tr>
<tr>
<td>Matrix Reasoning</td>
<td>Scaled</td>
<td>Primary (FSIQ)</td>
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<tr>
<td>Digit Span</td>
<td>Scaled</td>
<td>Primary (FSIQ)</td>
</tr>
<tr>
<td>Coding</td>
<td>Scaled</td>
<td>Primary (FSIQ)</td>
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<td>Vocabulary</td>
<td>Scaled</td>
<td>Primary (FSIQ)</td>
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<tr>
<td>Figure Weights</td>
<td>Scaled</td>
<td>Primary (FSIQ)</td>
</tr>
<tr>
<td>Visual Puzzles</td>
<td>Scaled</td>
<td>Primary</td>
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<tr>
<td>Symbol Search</td>
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<td>Primary</td>
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<tr>
<td>Information</td>
<td>Scaled</td>
<td>Secondary</td>
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<tr>
<td>Picture Concepts</td>
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<td>Secondary</td>
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<td>Letter-Number Seq</td>
<td>Scaled</td>
<td>Secondary</td>
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<td>Cancellation</td>
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<td>Secondary</td>
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<tr>
<td>Arithmetic</td>
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<td>Secondary</td>
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<td>Naming Speed Literacy</td>
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<td>Complementary</td>
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<tr>
<td>Naming Speed Quantity</td>
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<td>Complementary</td>
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<tr>
<td>Immediate Symbol</td>
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<td>Complementary</td>
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<tr>
<td>Translation</td>
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<td>Complementary</td>
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<td>Delayed Symbol</td>
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<td>Complementary</td>
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<td>Recognition Symbol</td>
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<td>Complementary</td>
</tr>
<tr>
<td>Translation</td>
<td>Standard</td>
<td>Complementary</td>
</tr>
</tbody>
</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 Picture Concepts

- Items revised so images not reused
- New items

Changes to Retained Working Memory Subtests

- Letter-Number Sequencing
  - Eliminated rhyming letters and numbers
  - Teaching modified for floor
    - First teach numbers before letters
    - Items with only 1 number and 1 letter
    - Then teach reordering task with longer sequences

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 digital
Changes to Retained Processing Speed Subtests

- Symbol Search
  - New symbols
  - Evaluating error scores
  
  ![Sample Items](image1)

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

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

![Image of Visual Puzzles](image2)

Subtest Changes: New

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

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

"Which one of these weighs the same as this?"
**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 (Blalock & McCabe, 2011; Carroll, et al., 2010)

**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)

**Naming Speed**
- Color-Object Naming (age 6)
- Size-Color-Object Naming (ages 6–8)
- Letter-Number Naming (ages 7–16)

**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**
- Immediate Recall
- Delayed Recall
- "Tell me what each one means."
- "A man is on a boat"
Symbol Translation Recognition

- Child views a symbol and selects the associated word from the response options

  "What does this one mean?"
  A. Mom
  B. Us
  C. People
  D. Man

Test Structure – Full Scale IQ

- Primary Index Scores
  - Verbal Comprehension
  - Visual Spatial
  - Fluid Reasoning
  - Working Memory
  - Processing Speed

  VCI  VS1  FRI  WMI  PSI
  Perceptual Reasoning Index (PRI) Replaced

- CFA Model
  - 5 Factor
  - Arithmetic on Fluid Reasoning, Crossloading on Working Memory

Test Structure – Ancillary Index Scales

- Quantitative Reasoning
- Auditory Working Memory
- Numerical and Symbolic Reasoning
- General Ability
- Cognitive Processing

Test Structure – Complementary Scales and Subtests

- Storage and Retrieval
- Symbol Translation
- Symbol Translation Index
**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.

**Subtest Order**
- FSIQ subtests
- Remaining Primary
- Secondary & then Complementary
  - 2 secondary inserted after Symbol Translation

**Abbreviations**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Use</th>
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<tr>
<td>Q</td>
<td>Query</td>
</tr>
<tr>
<td>P</td>
<td>Prompt</td>
</tr>
<tr>
<td>DK</td>
<td>Don’t know</td>
</tr>
<tr>
<td>NR</td>
<td>No response</td>
</tr>
<tr>
<td>IR</td>
<td>Item repeated</td>
</tr>
<tr>
<td>RR</td>
<td>Requested repetition (not repeated)</td>
</tr>
<tr>
<td>SV</td>
<td>Observable Sub-vocalization</td>
</tr>
<tr>
<td>SC</td>
<td>Self-corrected</td>
</tr>
</tbody>
</table>

**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
  - Circle number of correctly placed blocks at the time limit in the gray Optional Partial Score column
  - Award time bonus points as appropriate
- 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

Visual Puzzles
- General Directions – Prompts
  - Child must point or say the number of the answer
  - Responses can be in any order
  - Child must select 3 puzzle pieces
  - Child may have to mentally rotate a piece

VP Timing
- The time limit for each item is 30 seconds.
- After 20 seconds, say Do you have an answer?

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 Timing
• The time limit for Items 1–18: 20 seconds
• The time limit for Items 19–34: 30 seconds
• When 10 seconds remain, say Do you have an answer?
• 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
AR Timing
- The time limit for each item is 30 seconds.
- Repetition is allowed on Items 20-34 at the child’s request.
- Accurate timing is essential.
  - For Items 20–34, pause timing to repeat an item if the child requests a repetition.
  - Stop timing when the child responds or indicates that he or she does not know the answer, or the time limit expires.

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.
- Set = share similar characteristics
  - S underneath on the scoring key
- Rotation = rotated version of the target
  - R underneath on the scoring key
- Count for errors even if child self-corrects

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.
**Picture Span (PS)**
- New Working Memory subtest
- Consists of 26 test items
- 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 Timing**
- Accurate timing is essential
  - Begin timing for each item after saying the last word of instruction.
- Sample Item A - Item 3: 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 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.
- For Items 1 and 2, child must recall number first

**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.

**NSL - Stopping Points and Timing**

- **Step**
  - **Age 6**
    - After administration of Items 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**

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

**NSL - Recording and Scoring Responses**

**How do I score NSL?**

- **Trial 1 Completion Time** + **Trial 2 Completion Time** = Naming Speed Ex of Object
  - Total Raw Score (Maximum = 400)
- **Trial 1 Completion Time** + **Trial 2 Completion Time** = Naming Speed Size-Color-Object
  - Total Raw Score (Maximum = 400)
- **Trial 1 Completion Time** + **Trial 2 Completion Time** = Naming Speed Letter-Number
  - Total Raw Score (Maximum = 400)

**Additional Scoring Guidance**

- Self Corrections allowed at any time
- Corrections to incomplete names of attributes (e.g., child says, “Yel...Blue”) are not considered self-corrections
- 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

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

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

- Children aged 6–8 are required to track their progress across the rows of boxes with their finger.
  - If the child is not tracking, "Use your finger to keep your place."

- 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>SB</th>
<th>4</th>
<th>2</th>
<th>3</th>
<th>SC</th>
<th>1</th>
</tr>
</thead>
</table>

*Equals 1 error and 1 SC*
How do I score NSQ?

Immediate Symbol Translation (IST)

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

29 words & 5 modifiers

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

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

Immediate Symbol Translation (IST)

Tell me what each one means.

A man is on a boat.

IST - 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 ①, ②, or ③.

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Discontinue if the child’s cumulative raw score is less than or equal to the specified value at decision point ①, ②, or ③.

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Discontinue
Discontinue if the child’s cumulative raw score is less than or equal to the specified value at decision point ①, ②, or ③.

IST - Key Administration Points

- No response to a symbol after approximately 5 seconds, or “don’t know”
  - 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:
  - Start again from here
**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:
  - Start again from here.
- For items 1-3, errors are corrected as needed on the 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
  - Errors in word form are NOT penalized (slepted for slept)
- The inclusion of extraneous or additional words in a translation does not affect the score
  - i.e., had ate
- Mark correct translations with a check mark
  - Incorrects or skipped symbols are left empty
    - Unless marked for qualitative purposes

**IST Scoring – Final Details**

Sum of all conditions goes here
Remember to Record stop time

**Delayed Symbol Translation (DST)**

The child translates symbols into words, phrases, or sentences using recalled visual-verbal pairs from Immediate Symbol Translation.

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

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

20. Delayed Symbol Translation

Start

Ages 6-16: Item 1

Discontinue

At the same decision point as Immediate Symbol Translation (e.g., A, B, or C)

Score

Record total number of correct translations. The words “The” and “And” do not receive credit for items 7-21.
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 but do not include the letter
- Repeat items as often as necessary, but do not alter the wording

Q-interactive

Components of Assess

Practitioner

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 Central Dashboard

Client

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.
Comparison Results

Item Level Responses

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 Puzzles</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>
</tr>
<tr>
<td>120–129</td>
<td>Very High</td>
<td>Superior</td>
</tr>
<tr>
<td>110–119</td>
<td>High Average</td>
<td>High Average</td>
</tr>
<tr>
<td>90–109</td>
<td>Average</td>
<td>Average</td>
</tr>
<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>
</tr>
</tbody>
</table>

Scores Obtained

- Scaled scores
  - All subtest total raw scores yield scaled scores EXCEPT...
- Standard scores obtained for:
  - Naming Speed subtests (Naming Speed Literacy and Naming Speed Quantity)
  - Symbol Translation subtests (Immediate Symbol Translation, Delayed Symbol Translation, and Recognition Symbol Translation)

Process Scores

- Scaled or standard process scores are available on four subtests: Block Design, Digit Span, Cancellation, and Naming Speed Literacy
- Item-level scoring may differ from the typical procedure

Scaled and Standard Process Scores

<table>
<thead>
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<th>Scaled or Standard Process Score</th>
<th>Abbreviation</th>
<th>Score Type</th>
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</tr>
<tr>
<td>Block Design Partial Score</td>
<td>BDp</td>
<td>Scaled</td>
</tr>
<tr>
<td>Digit Span Forward</td>
<td>DSf</td>
<td>Scaled</td>
</tr>
<tr>
<td>Digit Span Backward</td>
<td>DSB</td>
<td>Scaled</td>
</tr>
<tr>
<td>Digit Span Sequencing</td>
<td>DSS</td>
<td>Scaled</td>
</tr>
<tr>
<td>Cancellation Random</td>
<td>CAr</td>
<td>Scaled</td>
</tr>
<tr>
<td>Cancellation Structured</td>
<td>CAs</td>
<td>Scaled</td>
</tr>
<tr>
<td>Naming Speed Color-Object</td>
<td>NSco</td>
<td>Standard</td>
</tr>
<tr>
<td>Naming Speed Site-Color-Object</td>
<td>NSsco</td>
<td>Standard</td>
</tr>
<tr>
<td>Naming Speed Letter-Number</td>
<td>NSln</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 Profile Analysis**
- Report and describe FSIQ
- Report and describe Index Scores
  - VCI, VSI, FRI, WMI, PSI
- Evaluate Index-Level Strengths and Weaknesses
- Evaluate Index-Level Pairwise Comparisons
- Evaluate Subtest-level strengths and weakness
- Evaluate Subtest-Level pairwise comparisons

**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.

**Visual Spatial 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
- 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.

Highlights of Interpretation: VSI vs FRI
• 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.
Ancillary & Complementary Profile Analysis

• Report and describe QRI, AWMI, NVI, GAI, CPI, NSI, STI, SRI
• Evaluate Ancillary & Complementary Composite-Level Pairwise Comparisons
• Evaluate Ancillary & Complementary Subtest-level pairwise comparisons
• Perform the Process Analysis
• Evaluate Process & Complementary Contrast Scores

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.

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.

Quantitative Reasoning Index

• Can help to tailor instruction and intervention to a student’s strength
• May be of special interest if it is suspected that a child has a specific learning disability in mathematics, as quantitative reasoning may be a particular weakness and a pertinent target for intervention for these children

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
  - WM 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.

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.

- 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.

- 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.

**Scaled/Standard Process Scores**

<table>
<thead>
<tr>
<th>Scaled or Standard Process Score</th>
<th>Abbreviation</th>
<th>Score Type</th>
</tr>
</thead>
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<td>Scaled</td>
</tr>
<tr>
<td>Block Design Partial Score</td>
<td>BBp</td>
<td>Scaled</td>
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<td>Digit Span Forward</td>
<td>DSf</td>
<td>Scaled</td>
</tr>
<tr>
<td>Digit Span Backward</td>
<td>DSb</td>
<td>Scaled</td>
</tr>
<tr>
<td>Digit Span Sequencing</td>
<td>DSs</td>
<td>Scaled</td>
</tr>
<tr>
<td>Cancellation Random</td>
<td>CAR</td>
<td>Scaled</td>
</tr>
<tr>
<td>Cancellation Structured</td>
<td>CAS</td>
<td>Scaled</td>
</tr>
<tr>
<td>Naming Speed Color-Object</td>
<td>NSco</td>
<td>Standard</td>
</tr>
<tr>
<td>Naming Speed Size-Color-Object</td>
<td>NSsco</td>
<td>Standard</td>
</tr>
<tr>
<td>Naming Speed Letter-Number</td>
<td>NSln</td>
<td>Standard</td>
</tr>
</tbody>
</table>

**Longest Span Process Scores**

<table>
<thead>
<tr>
<th>Longest Span and Sequence Score</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Longest Digit Span Forward</td>
<td>LDSf</td>
</tr>
<tr>
<td>Longest Digit Span Backward</td>
<td>LDSb</td>
</tr>
<tr>
<td>Longest Digit Span Sequence</td>
<td>LDSs</td>
</tr>
<tr>
<td>Longest Picture Span Stimulus</td>
<td>LPSs</td>
</tr>
<tr>
<td>Longest Picture Span Response</td>
<td>LPSr</td>
</tr>
<tr>
<td>Longest Letter–Number Sequence</td>
<td>LLNs</td>
</tr>
</tbody>
</table>
### Error Process Scores

<table>
<thead>
<tr>
<th>Error Process</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block Design Dimension Errors</td>
<td>BDde</td>
</tr>
<tr>
<td>Block Design Rotation Errors</td>
<td>BDre</td>
</tr>
<tr>
<td>Coding Rotation Errors</td>
<td>CDre</td>
</tr>
<tr>
<td>Symbol Search Set Errors</td>
<td>SSse</td>
</tr>
<tr>
<td>Symbol Search Rotation Errors</td>
<td>SSre</td>
</tr>
<tr>
<td>Naming Speed Literacy Errors</td>
<td>NSLe</td>
</tr>
<tr>
<td>Naming Speed Size-Color-Object Errors</td>
<td>NSscoe</td>
</tr>
<tr>
<td>Naming Speed Letter-Number Errors</td>
<td>NSlne</td>
</tr>
<tr>
<td>Naming Speed Quantity Errors</td>
<td>NSQe</td>
</tr>
</tbody>
</table>

### 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).

### 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

<table>
<thead>
<tr>
<th>Broad Ability</th>
<th>Narrow Ability</th>
<th>Primary Narrow Abilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gc</td>
<td>RO (General Verbal Information)</td>
<td>WISC-V Subtest</td>
</tr>
<tr>
<td></td>
<td>VL (Lexical Knowledge)</td>
<td>Information</td>
</tr>
<tr>
<td>Gf</td>
<td>Fluid Reasoning Index</td>
<td>Block Design</td>
</tr>
<tr>
<td></td>
<td>Matrix Reasoning</td>
<td>Picture Span</td>
</tr>
<tr>
<td>Gv</td>
<td>V2 (Visualization)</td>
<td>MV (Visual Memory)</td>
</tr>
<tr>
<td>MV</td>
<td>Picture Span</td>
<td>WISC-V Subtest</td>
</tr>
</tbody>
</table>

### 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 (Coalson et al.; Wechsler, 1958).
- And, the scales are evolving.
### WISC-V and CHC XBA Applications

<table>
<thead>
<tr>
<th>Broad Ability</th>
<th>Narrow Ability</th>
<th>Primary Narrow Abilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA ( Associative Memory)</td>
<td>Immediate Symbol Translation</td>
<td>WISC-V Subtest</td>
</tr>
<tr>
<td>NA ( Naming Facility)</td>
<td>Naming Speed Literacy (Reading referrals)</td>
<td></td>
</tr>
<tr>
<td>FI ( Ideational Fluency)</td>
<td>KTEA3 Associational Fluency</td>
<td></td>
</tr>
<tr>
<td>Auditory Working Memory Index</td>
<td>Digit Span</td>
<td></td>
</tr>
<tr>
<td>MS (Memory Span)</td>
<td>Digit Span</td>
<td></td>
</tr>
<tr>
<td>MW (Working Memory Capacity)</td>
<td>Letter-Number Sequencing</td>
<td></td>
</tr>
</tbody>
</table>

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### WISC-V and CHC XBA Applications

<table>
<thead>
<tr>
<th>Broad Ability</th>
<th>Narrow Ability</th>
<th>Primary Narrow Abilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gs</td>
<td>Processing Speed Index</td>
<td></td>
</tr>
<tr>
<td>R9 (Rate of Test-Taking)</td>
<td>Coding</td>
<td></td>
</tr>
<tr>
<td>P (Perceptual Speed)</td>
<td>Symbol Search</td>
<td></td>
</tr>
<tr>
<td>PC (Phonetic Coding)</td>
<td>KTEA3 Phonological Awareness</td>
<td></td>
</tr>
</tbody>
</table>