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Today’s presentation...

- Standard Revision Goals
- Standardization
- Subtests
- Index Framework
- Scores
- Modes of administration and scoring
- KTEA-3 Presentation
WISC-V Revision Goals

- Update theoretical foundations
- Increase user friendliness
- Increase developmental appropriateness
- Improve psychometric properties
- Enhance clinical utility
Improve Psychometric Properties

• Maintain or improve reliability
• Norms and norming method
• Floors and ceilings
• Items and scoring rules
• Reevaluate item bias
  – Iterative psychometric analyses
  – Qualitative reviews by experts
Improve Psychometric Properties

• Significance level options for critical values
• Increase statistical evidence of cultural fairness
  – Collect home environment questionnaire and convey results
  – Increase available information on impact of SES (e.g., urban vs. rural schools)
Increase User Friendliness

• Reduce testing time
  – Stretch objective for WISC-V: $\leq 61$ minutes for FSIQ and 5 index scores
  – FSIQ subtests may not include all primary index subtests
  – Provide testing time by age and by subtest
  – Provide testing time for various percentages of normative sample by age and special group samples to complete each subtest
Update Theoretical Foundations

• Increase breadth of construct coverage by investigating and developing:

  – Visual Spatial subtests
  – Fluid Reasoning subtests
  – 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
Enhance Clinical Utility

Composite Score Changes

• Full Scale IQ
  – FSIQ won’t necessarily include all primary index-score subtests
  – Quicker to obtain

• Five factor-based Primary Index Scores
  • VCI, VSI, FRI, WMI, PSI
Enhance Clinical Utility (cont’d)

Ancillary Index Scores (Likely)

• General Ability Index (GAI)
• Cognitive Proficiency Index (CPI)
• Auditory Working Memory (AWMI)
• Nonverbal Index (NVI)
• Quantitative Reasoning (QRI)
• Naming Speed Index (NSI)
• Symbol Translation Index (STI)
• Storage and Retrieval Index (SRI)
Increase Developmental Appropriateness

- Reduce vocabulary level
  - Ceiling items on Similarities
  - “Advantages” and other high vocabulary level of items on Comprehension
- Reduce verbosity
- Instructions
- Demonstrate, practice, and teach the task
- Replace outdated art and items with more current and relevant
- Working Memory
Standardization

- Canadian Standardization
- Additional US studies
Development of the WISC-V\textsubscript{CDN}: Canadian Standardization

- Normative Sample
- Validity Studies
- Clinical Studies
Development of the WISC-V\textsuperscript{CDN}: Canadian Standardization - Normative Sample

- Canadian Normative Sample

- Variables used to stratify sample:
  - Age (6-16)
  - Sex
  - Race/Ethnicity
  - Parent Education Level
  - Geographic Region

- Strong First Nation representation in sample

- Updated 2011 Census Stratification
Development of the WISC-V_{CDN}: Canadian Standardization – Validity Studies

- Link with WIAT-III_{CDN}
- WISC-IV_{CDN}
- Counterbalance Study with WISC-IV_{CDN}
- Additional US validity studies reported
Development of the WISC-V\textsuperscript{CDN}: Canadian Standardization – Clinical Studies

- Gifted Sample (previously identified, IQ ≥ 130)
- Intellectual Disability
  - Mild
  - Moderate
- “Canadian Item” exploration in Information subtest
Additional Studies from the US

- Link to KTEA-3
- Reliability
- Validity
Link with KTEA-3

- **Written Language Composite**
  - Written Expression, Spelling

- **Math Composite**
  - **New!** Math Fluency
  - Math Concepts and Applications
  - Math Computation

- **Reading-related Subtests**
  - **New!** Silent Reading Fluency
  - **New!** Writing Fluency
  - **New!** Reading Vocabulary
  - Phonological Awareness
  - Nonsense Word Decoding
  - Word Recognition Fluency
  - Decoding Fluency
  - Associational Fluency
  - Naming Facility (RAN)

- **Reading Composite**
  - Letter and Word Recognition
  - Reading Comprehension

- **Oral Language Composite**
  - **Revised!** Oral Expression Language Comprehension

- **AAD Analysis**
- **PSW Analysis**

- Behavioral checklist to look at how the child responds during testing

- Intervention suggestions for parents and teachers to expand the effectiveness of your evaluation
Reliability and Errors of Measurement

**Test Score**

an approximation of a child’s hypothetical true score, that is, the score he or she would receive if the test were perfectly reliable.

**Measurement Error**

Difference between the hypothetical true score and the child’s obtained test score.

**A Reliable Test . . .**

. . . has relatively small amounts of measurement error and produces consistent measurement results within one administration and on different occasions.
## Evidence of Internal Consistency

<table>
<thead>
<tr>
<th>Composite</th>
<th>Overall Average ($r_{xx}^a$)</th>
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<tbody>
<tr>
<td>VCI</td>
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<td>FRI</td>
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</table>
## Standard Errors of Measurement

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

<table>
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<th>First Testing</th>
<th>Second Testing</th>
<th>Standard Difference</th>
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Evidence of a test’s construct validity can come from many different sources, including factor analysis, expert review, multitrait-multimethod studies, and clinical investigations.
Evidence of Validity
Confirmatory Factor Analysis
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
Correlations With WISC-IV

<table>
<thead>
<tr>
<th>Composite</th>
<th>WISC-V Mean</th>
<th>WISC-IV Mean</th>
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<td>AWMI-WMI</td>
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</tbody>
</table>

n = 242; ages 6-16
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
## Autism Spectrum Disorder

<table>
<thead>
<tr>
<th>Composite</th>
<th>Clinical Mean</th>
<th>Control Mean</th>
<th>Mean Diff.</th>
<th>$p$ value</th>
<th>Std. Diff.</th>
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<td>CPI</td>
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</tbody>
</table>

n = 30; ages 6-16
Subtest Changes

- Dropped
- New
- Updated and Improved
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...
Subtest Changes: New

• Visual Spatial subtest
  – Visual Puzzles

• Fluid Reasoning subtest
  – Figure Weights

• Working Memory subtest
  – Picture Span
  – Digit Span Sequencing task added to Digit Span

• Learning and Memory subtests
  – Immediate Symbol Translation
  – Delayed Symbol Translation
  – Recognition Symbol Translation
  – Naming Speed (Literacy and Quantity)
Visual Puzzles

• Child views completed puzzle and selects three response options that combine to reconstruct the puzzle
• Item time limit of 30 seconds
• Measures ability to analyze and synthesize abstract information

“Which three pieces go together to make this puzzle?”
Visual Puzzles (VP)

• **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.*

• **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**.
Figure Weights

- Child views scale with missing weight(s) and selects the response option that balances the scale
- Item time limit of 20 or 30 seconds
- Measures quantitative and analogical fluid reasoning

“Which one of these weighs the same as this?”
FW Admin

• **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.

• **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**.
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 the correct order and one point for correct pictures in the 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)

Stimulus Page

Response Page

“Point to the pictures in the order I showed you.”
Picture Span (PS)

• **Materials**
  – Administration and Scoring Manual
  – Record Form
  – Stimulus Book 2
  – Stopwatch

• **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.

• **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 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.

Items 4–26

• Score 2 points if the child selects *all* of the stimulus pictures in the *correct* order.
• Score 1 point if the child selects *all* of the stimulus pictures in an *incorrect* order.
• Score 0 points if the child does not select *all* of the stimulus pictures, selects an incorrect picture, says he or she does not know the answer, or does not respond within approximately 30 seconds.
### PS Record Form

<table>
<thead>
<tr>
<th>LPSs</th>
<th>LPSr</th>
<th>Picture Span Total Raw Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Max = 8)</td>
<td>(Max = 12)</td>
<td>(Maximum = 49)</td>
</tr>
</tbody>
</table>

**Changing time limit reminder**
Naming Speed Subtests

• 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
• 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 Subtests

- **Naming Speed Literacy**: Expand Patterns of Strengths and Weaknesses (PSW) analysis for specific learning disability (SLD) identification; sensitive to reading and written expression abilities

- **Naming Speed Quantity**: Expand PSW analysis for SLD identification; sensitive to math abilities
Naming Speed Literacy

1. Colour-Object Naming (age 6)  
2. Size-Colour-Object Naming (ages 6–8)

3. Letter-Number Naming (ages 7–16)

“Name them as fast as you can without making mistakes.”
NSL – Recording and Scoring Responses
How do I score NSL?

1. **Trial 1 Completion Time** + **Trial 2 Completion Time** = **Total Raw Score (Maximum = 600)**

2. **Trial 1 Completion Time** + **Trial 2 Completion Time** = **Total Raw Score (Maximum = 600)**

3. **Trial 1 Completion Time** + **Trial 2 Completion Time** = **Total Raw Score (Maximum = 600)**

**Ages 7–16**

**Naming Speed Literacy Total Raw Score**

- **Age 6**
  - \( \text{[__]} + \text{[__]} = \text{(Max = 1200)} \)

- **Ages 7–8**
  - \( \text{[__]} + \text{[__]} = \text{(Max = 1200)} \)

- **Ages 9–16**
  - \( \text{[__]} = \text{(Max = 600)} \)
“Name how many squares are in each box as fast as you can without making mistakes.”
Equals 1 error and 1 SC
How do I score NSQ?

**NSQe**
(Max = 40)

<table>
<thead>
<tr>
<th>Age 6</th>
</tr>
</thead>
</table>

**Trial 1 Completion Time** + **Trial 2 Completion Time** = **Naming Speed Quantity Total Raw Score**
(Maximum = 600)

<table>
<thead>
<tr>
<th>Ages 7–16</th>
</tr>
</thead>
</table>

**NSQe**
(Max = 40)

| Trial 1 Completion Time | Trial 2 Completion Time | **Naming Speed Quantity Total Raw Score**
|-------------------------|-------------------------|------------------------
|                         |                         | (Maximum = 600)        |
Symbol Translation Subtests

- Child learns symbols-words pairs and translates symbols into learned meanings
- Measure visual-verbal associative memory, which is related to reading, written expression, and math skills
- Immediate, Delayed, and Recognition Symbol Translation subtests
- Immediate ST teaches visual-verbal pairs in a stepwise manner, with repetition of associations introduced in the previous step, then recalls the learned associations by translating symbol strings
- Delayed ST administered 20 to 30 minutes after completion of Immediate subtest, recalls the learned associations from Immediate

- Immediate ST: learning and recall task
- Delayed ST: recall
- Recognition ST: recognize meaning from four read aloud while viewing the symbol
Immediate Symbol Translation
Delayed Symbol Translation

“Tell me what each one means.”
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 A, B, or C.
Discontinue Decision Point Example
IST Scoring – Final Details

If Delayed Symbol Translation and/or Recognition Symbol Translation will be administered, begin monitoring elapsed time (approximately 20–30 minutes).

Remember to Record stop time

Sum of all conditions goes here

<table>
<thead>
<tr>
<th>Stop Time</th>
<th>Immediate Symbol Translation Total Raw Score (Maximum = 108)</th>
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</thead>
<tbody>
<tr>
<td>Hr.</td>
<td>Min.</td>
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</table>

Remember to Record stop time
**Delayed Symbol Translation (DST)**

**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., 🔄, 🔄, or 🔄)

Score
Record total number of correct translations. The words “The” and “And” do not receive credit for Items 7–21.
If the child discontinued Immediate Symbol Translation at ✑, discontinue Delayed Symbol Translation here.
DST—Recording and Scoring Responses
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
Recognition Symbol Translation
RST Start & Discontinue

Start
Ages 6–16
Item 1

Discontinue
Discontinue at the same decision point as Immediate Symbol Translation (e.g., A, B, or C). 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
Changes to Retained Verbal Comprehension Subtests

- Updated art with increased international portability
- Revised scoring rules with data-based queries
- New, contemporary item content
- Stimulus Book eliminated on Vocabulary
Similarities (SI)

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

• **Materials**
  – Administration and Scoring Manual
  – Record Form
SI Start Rules

Start

– Ages 6-7: Sample Item, then Item 1
– Ages 8–11: Sample Item, then Item 5
– Ages 12-16: Sample Item, then Item 8
– Children suspected of having an intellectual disability or low cognitive ability should start with the Sample Item, then Item 1.
SI Reverse & Discontinue Rules

Reverse
  – If a child aged 8–16 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.
SI Record Form
Vocabulary (VC)

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

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

Start
- Ages 6–7: Item 1
- Ages 8–11: Item 5
- Ages 12–16: Item 9
- Children suspected of having an intellectual disability or low cognitive ability should start with Item 1.

Reverse
- If a child aged 8–16 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.
Information (IN)

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

- Consists of 31 items:
  - 19 new, 9 retained, 4 modified.
- Scoring criteria for all retained and modified items are revised.
IN Start, Reverse, & Discontinue

- **Start**
  - **Ages 6–8:** Item 1
  - **Ages 9–16:** Item 8
  - *Children suspected of having an intellectual disability or low cognitive ability should start with Item 1.*

- **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.
Comprehension (CO)

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

- **Materials**
  - Administration and Scoring Manual
  - Record Form
CO Start, Reverse, & Discontinue

• Start
  – Ages 6–11: Item 1
  – Ages 12-16: Item 3
  – *Children suspected of having an intellectual disability or low cognitive ability should start with Item 1.*

• Reverse
  – If a child aged 12–16 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.
Changes to Retained Perceptual Reasoning Subtests

• Block Design
  – Visual Spatial Index
  – New diamond and X-shaped designs
  – Evaluating new process scores
    • Partial Score
    • Simplified Break in Configuration Error Score
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
• Start
  – Ages 6–7: Item 1
  – Ages 8–16: Item 3
  – *Children suspected of having an intellectual disability or low cognitive ability should start with Item 1.*

• Reverse
  – If a child aged 8–16 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 2 consecutive scores of 0.
BD Dimension Errors

- Max dimension for a square- or diamond-shape is exceeded
- Only penalize uncorrected errors
- BDde – process score
Changes to Retained Perceptual Reasoning Subtests

- Fluid Reasoning Index
- Two item types retained and taught
  - 2x2 matrix
  - serial order
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
MR Start Points

• **Start**
  - **Ages 6–8:** Sample Items A & B, then Item 1
  - **Ages 9–11:** Sample Items A & B, then Item 5
  - **Ages 12–16:** Sample Items A & B, then Item 9
  - Use clinical judgment to start with Sample Items A & B, then Item 1, regardless of age.

• **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.
Changes to Retained Perceptual Reasoning Subtests

- Picture Concepts
  - Fluid Reasoning Index
  - Items revised so images not reused
  - New items
Picture Concepts (PC)

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

**Materials**
- Administration and Scoring Manual
- Record Form
- Stimulus Book 2
PC Start Points

• **Start**
  - **Ages 6–8:** Sample Items A & B, then Item 1
  - **Ages 9–11:** Sample Items A & B, then Item 4
  - **Ages 12–16:** Sample Items A & B, then Item 7
  - Use clinical judgment to start with Sample Items A & B, then Item 1, regardless of age.

• **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
Arithmetic

- Moved to Fluid reasoning
- New and revised items
- One repetition on difficult items
- Cross loading
AR Admin

• Start
  – Ages 6–7: Item 3
  – Ages 8–9: Item 8
  – Ages 10–16: Item 11
  – Children suspected of having an intellectual disability or low cognitive ability should start with Item 1.

• 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
AR Timing

• The time limit for each item is **30 seconds**.

• 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.
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
Letter-Number Sequencing (LN)

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

- **Materials**
  - Administration and Scoring Manual
  - Record Form
Letter-Number Sequencing (LN)

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

Start

- **Ages 6-7**: Qualifying Items, Demonstration Item A, Sample Item A, then Item 1
- **Ages 8-16**: Demonstration Item A, Sample Item A, then Item 1

Discontinue

**Ages 6-7**: Discontinue after an incorrect response to either Qualifying Item OR after scores of 0 on *all three trials* of an item.

**Ages 8-16**: Discontinue after scores of 0 on *all three trials* of an item.
Changes to Retained WISC-IV Working Memory Subtests

• Digit Span
  – Added trials to Forward ceiling
  – Added some trials for gradient
  – Added new Sequencing task
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.

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

- **Materials**
  - Administration and Scoring Manual
  - Record Form
DS Start Rules

Start

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

**Discontinue**

**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.
Changes to Retained Processing Speed Subtests

• Coding
  – Item difficulty consistent across rows
  – Changed symbols for digital
Coding (CD)

- Processing Speed subtest
- 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
Coding (CD)

- **Materials**
  - Administration and Scoring Manual
  - Record Form
  - Response Booklet 1
  - #2 Pencil without eraser
  - Stopwatch
  - Coding Scoring Template
CD Start Points

Start

- **Ages 6–7:** Form A Demonstration Items, Sample Items, then Test Items
- **Ages 8–16:** Form B Demonstration Items, Sample Items, then Test Items
- *Children suspected of having an intellectual disability or low cognitive ability should be given the Form corresponding to their chronological age.*

Discontinue

- **Ages 6-16:** Discontinue **120 seconds** (2 minutes).
Changes to Retained Processing Speed Subtests

• Symbol Search
  – New symbols
  – Evaluating error scores
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.

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

Ages 6–7 Form A

Ages 8–16 Form B
SS Start Points

Start

- Ages 6-7: Form A Demonstration Items, Sample Items, then Test Items
- Ages 8-16: Form B Demonstration Items, Sample Items, then Test Items
- Children suspected of having an intellectual disability or low cognitive ability should be given the Form corresponding to their chronological age.

Discontinue

- Discontinue after **120 seconds (2 minutes)**.
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.
Changes to Retained Processing Speed Subtests

• Cancellation
  – New art
  – Designed by quadrant (target to distracter ratio)
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.

Materials
– Administration and Scoring Manual
– Record Form
– Response Booklet 2
– Red Pencil without eraser
– Stopwatch
– Cancellation Scoring Template
Cancellation (CA) Admin

Start
- Ages 6-16: Demonstration Item, Sample Item, then Item 1

Discontinue
- Discontinue after 3 consecutive scores of 0.

- The time limit for each item is **45 seconds**.
WISC-V^{CDN}

TEST STRUCTURE
Standard Subtest Administration Order

1. Block Design
2. Similarities
3. Matrix Reasoning
4. Digit Span
5. Coding
6. Vocabulary
7. Figure Weights
8. Visual Puzzles
9. Picture Span
10. Symbol Search
11. Information
12. Picture Concepts
13. Letter–Number Sequencing
14. Cancellation
15. Naming Speed Literacy
16. Naming Speed Quantity
17. Immediate Symbol Translation
18. Comprehension
19. Arithmetic
20. Delayed Symbol Translation
21. Recognition Symbol Translation
## WISC–V Subtest Content

<table>
<thead>
<tr>
<th>Domain</th>
<th>Subtest</th>
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<tbody>
<tr>
<td>Verbal Comprehension</td>
<td>Similarities</td>
</tr>
<tr>
<td></td>
<td>Vocabulary</td>
</tr>
<tr>
<td></td>
<td>Information</td>
</tr>
<tr>
<td></td>
<td>Comprehension</td>
</tr>
<tr>
<td>Visual Spatial</td>
<td>Block Design</td>
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<td></td>
<td>Visual Puzzles</td>
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<tr>
<td>Fluid Reasoning</td>
<td>Matrix Reasoning</td>
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<td>Figure Weights</td>
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<tr>
<td></td>
<td>Picture Concepts</td>
</tr>
<tr>
<td></td>
<td>Arithmetic</td>
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<tr>
<td>Working Memory</td>
<td>Digit Span</td>
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<td>Picture Span</td>
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<td>Letter-Number Sequencing</td>
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<tr>
<td>Processing Speed</td>
<td>Coding</td>
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<tr>
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<td>Symbol Search</td>
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<td>Cancellation</td>
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<td>Ancillary Subtests</td>
<td>Naming Speed Literacy</td>
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<td></td>
<td>Naming Speed Quantity</td>
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<td>Immediate Symbol Translation</td>
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<td></td>
<td>Delayed Symbol Translation</td>
</tr>
<tr>
<td></td>
<td>Recognition Symbol Translation</td>
</tr>
</tbody>
</table>
Test Structure – Full Scale IQ
Substitution and Proration = No More “Core” and “Supplemental”

<table>
<thead>
<tr>
<th>FSIQ Subtest</th>
<th>Allowable Substitutions for Deriving the FSIQ*</th>
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</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:

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
Test Structure – Primary Index Scales

Primary Index Scales

- Verbal Comprehension
  - Similarities
  - Vocabulary
- Visual Spatial
  - Block Design
  - Visual Puzzles
- Fluid Reasoning
  - Matrix Reasoning
  - Figure Weights
- Working Memory
  - Digit Span
  - Picture Span
- Processing Speed
  - Coding
  - Symbol Search
Test Structure – Ancillary Index Scales

Ancillary Index Scales

Quantitative Reasoning
  Figure Weights
  Arithmetic

Auditory Working Memory
  Digit Span
  Letter–Number Sequencing

Nonverbal
  Block Design
  Visual Puzzles
  Matrix Reasoning
  Figure Weights
  Picture Span
  Coding

General Ability
  Similarities
  Vocabulary
  Block Design
  Matrix Reasoning
  Figure Weights

Cognitive Proficiency
  Digit Span
  Picture Span
  Coding
  Symbol Search
Quantitative Reasoning

- New complementary index comprised of Figure Weights and Arithmetic
  - Also appears in WAIS-IV/WMS-IV Advanced book as FW, SA, + AR
- AR requires actual math problem solving; however, AR is very complex having Fluid Reasoning, Verbal, and Working Memory components
- FW requires math skills in a more limited abstract manner. Requires the ability to reason through a problem and to select the best quantitative operation to obtain the correct response.
Auditory Working Memory

• Digit Span and Letter-Number Sequencing
• Very similar to WISC-IV working memory with greater focus on sequencing than previous edition.
• Contrast scores:
  – DSF VS DSB impact of additional mental manipulation required by DSB
  – DSF VS DSS impact of sequencing and number knowledge required by DSS
  – DSS VS LNS impact of dual-tasking and letter knowledge
• Useful when global difficulties with visual processing affecting test performance
Nonverbal Index

• Comprised of all visual tests from FSIQ and also Visual Puzzles and Picture Span
• Useful when examinee has clear verbal difficulties
  – ELL
  – RELD, ELD
  – ASD with Language Impairment
• Does have processing speed which can affect results just like FSIQ.
• More emphasis on Visual-Spatial Reasoning than FSIQ
Test Structure – Complementary Scales and Subtests
WISC-V Test Framework
## Descriptive Classifications

<table>
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<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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<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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<td>80–89</td>
<td>Low Average</td>
<td>Low Average</td>
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<td>70–79</td>
<td>Very Low</td>
<td>Borderline</td>
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<tr>
<td>69 and below</td>
<td>Extremely Low</td>
<td>Extremely Low</td>
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</table>
Evaluate Index-Level Strengths and Weaknesses

<table>
<thead>
<tr>
<th>Index Level</th>
<th>Strengths and Weaknesses</th>
<th>Comparison Selections</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Score</td>
<td>Comparison Score</td>
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<td>WMI</td>
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<td></td>
</tr>
<tr>
<td>PSI</td>
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</tr>
</tbody>
</table>

MIS: □
FSIQ: □
Choosing the Level of Significance

More stringent

Less stringent

Comparison Selections
Critical Value Significance Level

☐ .01  ☐ .05  ☐ .10  ☐ .15
## Primary Analysis: Subtest-Level Strengths and Weaknesses

### Comparison Selections

- **MSS-P**
  - Sum of Scaled Scores for 10 Primary Subtests: 14
  - Score: 14.6

- **MSS-F**
  - Sum of Scaled Scores for 7 FSIQ Subtests: 6

### Critical Value Significance Level

- .01
- .05
- .10 (✓)
- .15

### Base Rate Reference Group

- Overall Sample
- Ability Level

### Critical Value Significance Level

<table>
<thead>
<tr>
<th>Subtest Level</th>
<th>Score (MSS)</th>
<th>Difference</th>
<th>Critical Value</th>
<th>Strength or Weakness</th>
<th>Base Rate</th>
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<tbody>
<tr>
<td>Similarities</td>
<td>15</td>
<td>14.6</td>
<td>0.4</td>
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<td>Visual Puzzles</td>
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<td>Picture Span</td>
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<td>-4.6</td>
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Sample Subtest Pairwise Comparison

<table>
<thead>
<tr>
<th>Subtest Level</th>
<th>Comparison Selections</th>
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<tbody>
<tr>
<td>Similarities – Vocabulary</td>
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</tr>
<tr>
<td>Block Design – Visual Puzzles</td>
<td></td>
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<tr>
<td>Matrix Reasoning – Figure Weights</td>
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</tr>
<tr>
<td>Digit Span – Picture Span</td>
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</tr>
<tr>
<td>Coding – Symbol Search</td>
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</tbody>
</table>

**Comparison Selections**

- Critical Value Significance Level
  - .01
  - .05
  - .10
  - .15
# Scaled and Standard Process Scores

<table>
<thead>
<tr>
<th>Scaled or Standard Process Score</th>
<th>Abbreviation</th>
<th>Score Type</th>
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<tr>
<td>Block Design No Time Bonus</td>
<td>BDn</td>
<td>Scaled</td>
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<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>
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<td>Cancellation Random</td>
<td>CAr</td>
<td>Scaled</td>
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<tr>
<td>Cancellation Structured</td>
<td>CAs</td>
<td>Scaled</td>
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<tr>
<td>Naming Speed Color-Object</td>
<td>NSco</td>
<td>Standard</td>
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<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>
Raw Process Scores

• Simple raw scores; not age referenced, convert to base rates
• 6 Longest Span and Sequence Scores (example: LDSf, LDSb, LDSs)
• 10 Error Scores (example: rotation errors on BD, CD, and SS, number of errors on Naming Speed Literacy)
  • Interpretation on Naming Speed subtests, based only on time
• Process observations (e.g., Don’t Know, No Response)
  – Not on Record Form
  – Appendix D in Technical and Interpretive Manual)
### Longest Span Process Scores

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

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<tr>
<td>Symbol Search Rotation Errors</td>
<td>SSre</td>
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<td>Naming Speed Literacy Errors</td>
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<tr>
<td>Naming Speed Color–Object Errors</td>
<td>NScoe</td>
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<td>Naming Speed Letter–Number Errors</td>
<td>NSlne</td>
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<tr>
<td>Naming Speed Quantity Errors</td>
<td>NSQe</td>
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</tbody>
</table>
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
### Contrast Score example...Digit Span

#### Pairwise Difference Comparisons

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<th>Score 2</th>
<th>Difference</th>
<th>Critical Value</th>
<th>Significant Difference</th>
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<td>-BDn</td>
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<td>BD–BDn</td>
<td>BD</td>
<td>-BDn</td>
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<td>Y or N</td>
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<tr>
<td>DSf–DSb</td>
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<td>-DSb</td>
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<td>Y or N</td>
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<td>DSf–DSs</td>
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<td>-DSs</td>
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<td>DSs–LN</td>
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<td>-LN</td>
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#### Index level

#### Raw Score to Base Rate Conversion

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<tr>
<th>Process Score</th>
<th>Raw Score</th>
<th>Base Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Longest Digit Span Forward (LDSf)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Longest Digit Span Backward (LDSb)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Longest Digit Span Sequence (LDSs)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Longest Picture Span Stimulus (LPSs)</td>
<td></td>
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<tr>
<td>Longest Picture Span Response (LPSr)</td>
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<tr>
<td>Longest Letter–Number Sequence (LLNs)</td>
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</tbody>
</table>

#### Discrepancy Comparisons

<table>
<thead>
<tr>
<th>Process Score</th>
<th>Raw Score 1</th>
<th>Raw Score 2</th>
<th>Difference</th>
<th>Base Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDSf–LDSb</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>LDSf–LDSs</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LDSb–LDSs</td>
<td></td>
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</tbody>
</table>
## Contrast Score example...Digit Span Forward versus Digit Span Backward

<table>
<thead>
<tr>
<th>DSf vs DSb Interpretive Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DSfvDSb</strong></td>
</tr>
<tr>
<td>Low</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Average</td>
</tr>
<tr>
<td>High</td>
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# New Terminology

<table>
<thead>
<tr>
<th>Subtest</th>
<th>Score Type</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>BD</td>
<td>Scaled</td>
<td>Primary (FSIQ)</td>
</tr>
<tr>
<td>SI</td>
<td>Scaled</td>
<td>Primary (FSIQ)</td>
</tr>
<tr>
<td>MR</td>
<td>Scaled</td>
<td>Primary (FSIQ)</td>
</tr>
<tr>
<td>DS</td>
<td>Scaled</td>
<td>Primary (FSIQ)</td>
</tr>
<tr>
<td>CD</td>
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</tr>
<tr>
<td>VC</td>
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<td>Primary (FSIQ)</td>
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<tr>
<td>FW</td>
<td>Scaled</td>
<td>Primary (FSIQ)</td>
</tr>
<tr>
<td>VP</td>
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<td>Primary</td>
</tr>
<tr>
<td>PS</td>
<td>Scaled</td>
<td>Primary</td>
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<tr>
<td>SS</td>
<td>Scaled</td>
<td>Primary</td>
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<thead>
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<th>Subtest</th>
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<tbody>
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<td>PC</td>
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<tr>
<td>CA</td>
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<td>Secondary</td>
</tr>
<tr>
<td>CO</td>
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<td>Secondary</td>
</tr>
<tr>
<td>AR</td>
<td>Scaled</td>
<td>Secondary</td>
</tr>
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</table>
New Terminology

<table>
<thead>
<tr>
<th>Subtest</th>
<th>Score Type</th>
<th>Category</th>
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</thead>
<tbody>
<tr>
<td>NSL</td>
<td>Standard</td>
<td>Complementary</td>
</tr>
<tr>
<td>NSQ</td>
<td>Standard</td>
<td>Complementary</td>
</tr>
<tr>
<td>IST</td>
<td>Standard</td>
<td>Complementary</td>
</tr>
<tr>
<td>DST</td>
<td>Standard</td>
<td>Complementary</td>
</tr>
<tr>
<td>RST</td>
<td>Standard</td>
<td>Complementary</td>
</tr>
</tbody>
</table>
Coming Dec 2014!  Coming early 2015!

Paper/Pencil Format

Digital Format (Q-Interactive)

Both formats include the same subtests.
Scoring Options

Paper/Pencil Format

Hand-score  Q-global Scoring & Reporting

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Scoring: Paper/Pencil Format

Hand-score
With the traditional paper and pencil format, you will have the option to hand-score.

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- Web-based Scoring
  - Score Report
  - Combination Reports
  - Narrative Reports
Scoring: Digital Format

Similar score report output as those available on Q-global, plus:
• Automatic subtest scoring
• Immediate scaled scores
Coming December 2014!!!!!!

Pre-publication discount until Dec 1st, 2014

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