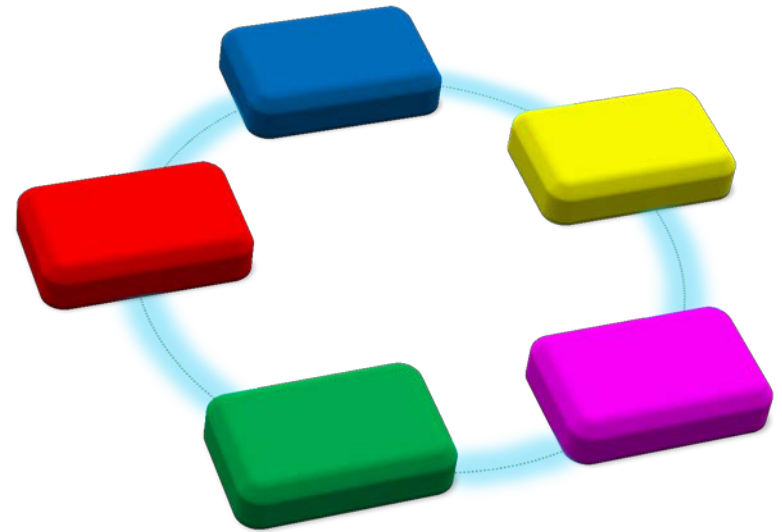




# WISC<sup>®</sup>-V<sup>CDN</sup>

WECHSLER INTELLIGENCE SCALE FOR CHILDREN<sup>®</sup> - FIFTH EDITION<sup>™</sup> - CANADIAN

## Preview



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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<sup>CDN</sup>: Canadian Standardization

❖ Normative Sample

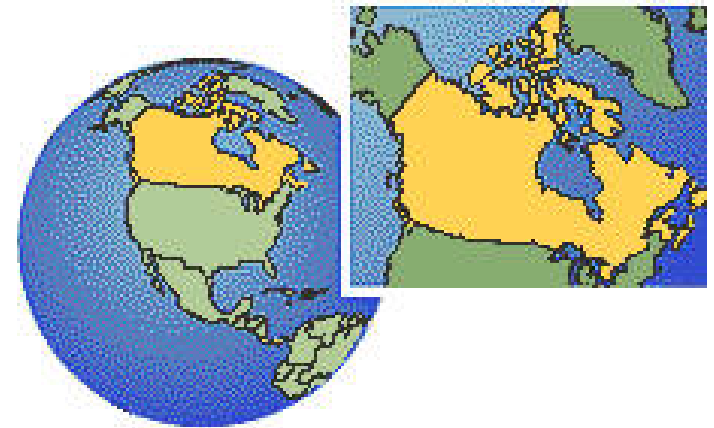
❖ Validity Studies

❖ Clinical Studies



# Development of the WISC-V<sup>CDN</sup>: 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<sup>CDN</sup>: Canadian Standardization – Validity Studies

- Link with WIAT-III<sup>CDN</sup>
- WISC-IV<sup>CDN</sup>
- Counterbalance Study with WISC-IV<sup>CDN</sup>
- Additional US validity studies reported



# Development of the WISC-V<sup>CDN</sup>: Canadian Standardization – Clinical Studies

- Gifted Sample (previously identified,  $IQ \geq 130$ )
- 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

Coming  
Spring  
2014

KTEA-3

# 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

Average Reliability Coefficient	
Composite	Overall Average ( $r_{xx}^a$ )
VCI	
VSI	
FRI	
WMI	
PSI	
<b>FSIQ</b>	
QRI	
AWMI	
NVI	
GAI	
CPI	

# Standard Errors of Measurement

Composite	Overall Average SEM
VCI	
VSI	
FRI	
WMI	
PSI	
<b>FSIQ</b>	
QRI	
AWMI	
NVI	
GAI	
CPI	

# Evidence of Test-Retest Stability – Composite Scores

Composite	First Testing	Second Testing	Standard Difference
VCI			
VSI			
FRI			
WMI			
PSI			
FSIQ			
QRI			
AWMI			
NVI			
GAI			
CPI			

# Types of Validity

## **Content Validity**

Test adequately sampled relevant aspects of the construct being measured.

## **Criterion-Related Validity**

Scores are shown to be related to specified external criteria, such as performance on some other measure or group membership.

## **Construct Validity**

construct purported to be measured by the test was actually measured.

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

Composite	WISC-V Mean	WISC-IV Mean	Standard Difference
VCI			
VSI-PRI			
FRI-PRI			
WMI			
PSI			
FSIQ			
AWMI-WMI			
GAI			
CPI			

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

Composite	Clinical Mean	Control Mean	Mean Diff.	<i>p</i> value	Std. Diff.
VCI					
VSI					
FRI					
WMI					
PSI					
FSIQ					
QRI					
AWMI					
NVI					
GAI					
CPI					

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

← Changing time  
limit reminder

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

# 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?

**Trial 1 Completion Time**

+

**Trial 2 Completion Time**

=

 ①

**Naming Speed Color–Object  
Total Raw Score**  
(Maximum = 600)

**Trial 1 Completion Time**

+

**Trial 2 Completion Time**

=

 ②

**Naming Speed Size–Color–Object  
Total Raw Score**  
(Maximum = 600)

**Trial 1 Completion Time**

+

**Trial 2 Completion Time**

=

 ③

**Naming Speed Letter–Number  
Total Raw Score**  
(Maximum = 600)



**Ages 7–16**

**Naming Speed Literacy Total Raw Score**

Age 6

 ①

+

 ②

=

 (Max = 1200)

Ages 7–8

 ②

+

 ③

=

 (Max = 1200)

Ages 9–16

 (Max = 600)

# Naming Speed Quantity

1: 1–4 (age 6)

2. 1–5 (ages 7–16)

**“Name how many squares are in each box as fast as you can without making mistakes.”**

# NSQ – Recording and Scoring Responses

7-16 →	SB.	<del>1</del>	4	3	5
		4	2	<del>5</del> SC	1

*Equals 1 error and 1 SC*

# How do I score NSQ?

<b>NSQe</b>
(Max = 40)

**STOP** Age 6

<b>Trial 1 Completion Time</b>

+

<b>Trial 2 Completion Time</b>

=

--

**Naming Speed Quantity  
Total Raw Score**  
(Maximum = 600)

<b>NSQe</b>
(Max = 40)

**STOP** Ages 7–16

<b>Trial 1 Completion Time</b>

+

<b>Trial 2 Completion Time</b>

=

--

**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



**Ages 6–16**

Item 1



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

Sum of all conditions goes here



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

Stop Time	
____	____
Hr.	Min.

Immediate Symbol Translation  
Total Raw Score  
(Maximum = 108)

--

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., (A), (B), or (C))



**Score**

Record total number of correct translations. The words “The” and “And” do not receive credit for Items 7–21.

# DST- Stopping Points and Timing

If the child discontinued Immediate Symbol Translation at (A), 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

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**Similarities**  
**Total Raw Score**  
(Maximum = 46)

# 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.

# VC Record Form

**Vocabulary Total Raw Score**  
(Maximum = 54)

# 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

# BD Admin



- **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<sup>CDN</sup>

# TEST STRUCTURE

# Standard Subtest Administration Order

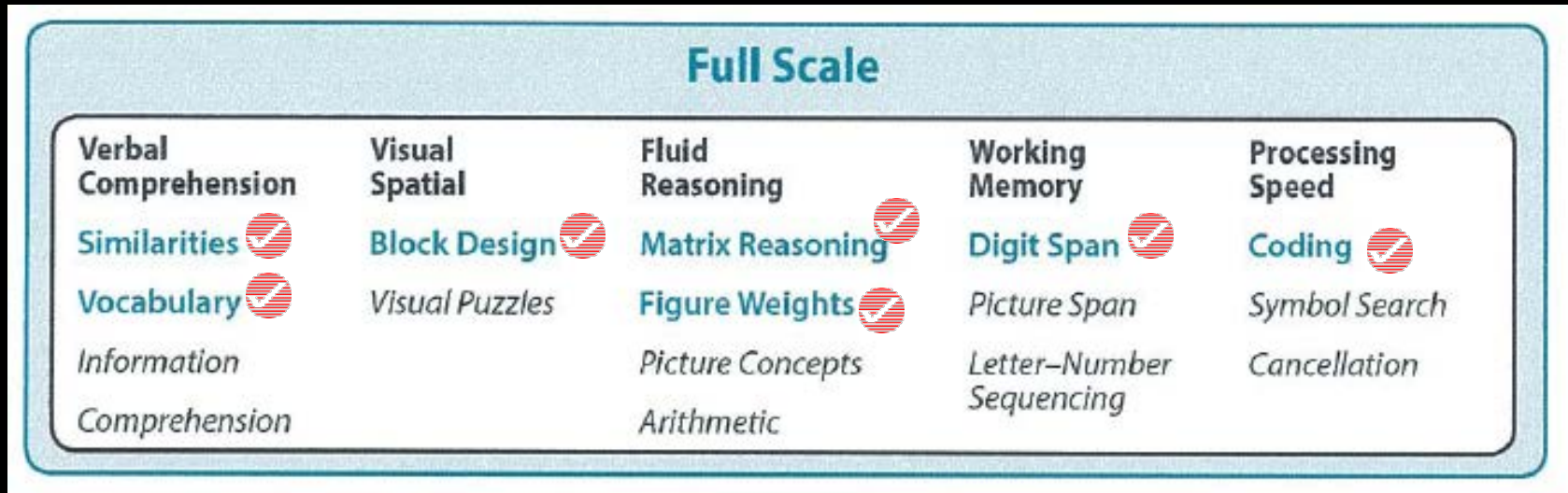
1. Block Design
2. Similarities
3. Matrix Reasoning
4. Digit Span
5. Coding
6. Vocabulary
7. Figure Weights
8. Visual Puzzles
9. Picture Span
10. Symbol Search
11. Information
12. Picture Concepts
13. Letter–Number Sequencing
14. Cancellation
15. Naming Speed Literacy
16. Naming Speed Quantity
17. Immediate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

# WISC-V Subtest Content

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

<b>Ancillary Subtests</b>	Naming Speed Literacy
	Naming Speed Quantity
	Immediate Symbol Translation
	Delayed Symbol Translation
	Recognition Symbol Translation

# Test Structure – Full Scale IQ



# Substitution and Proration = No More “Core” and “Supplemental”

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

- **Only one 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, AWM) = 1 out of 2

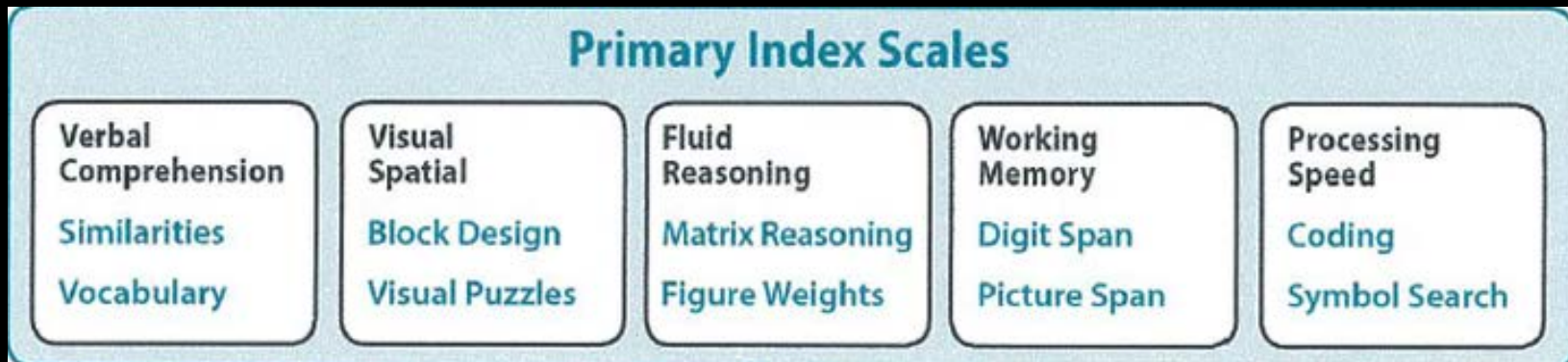
NVI = 3 out of 6

GAI = 3 out of 5

CPI = 2 out of 4

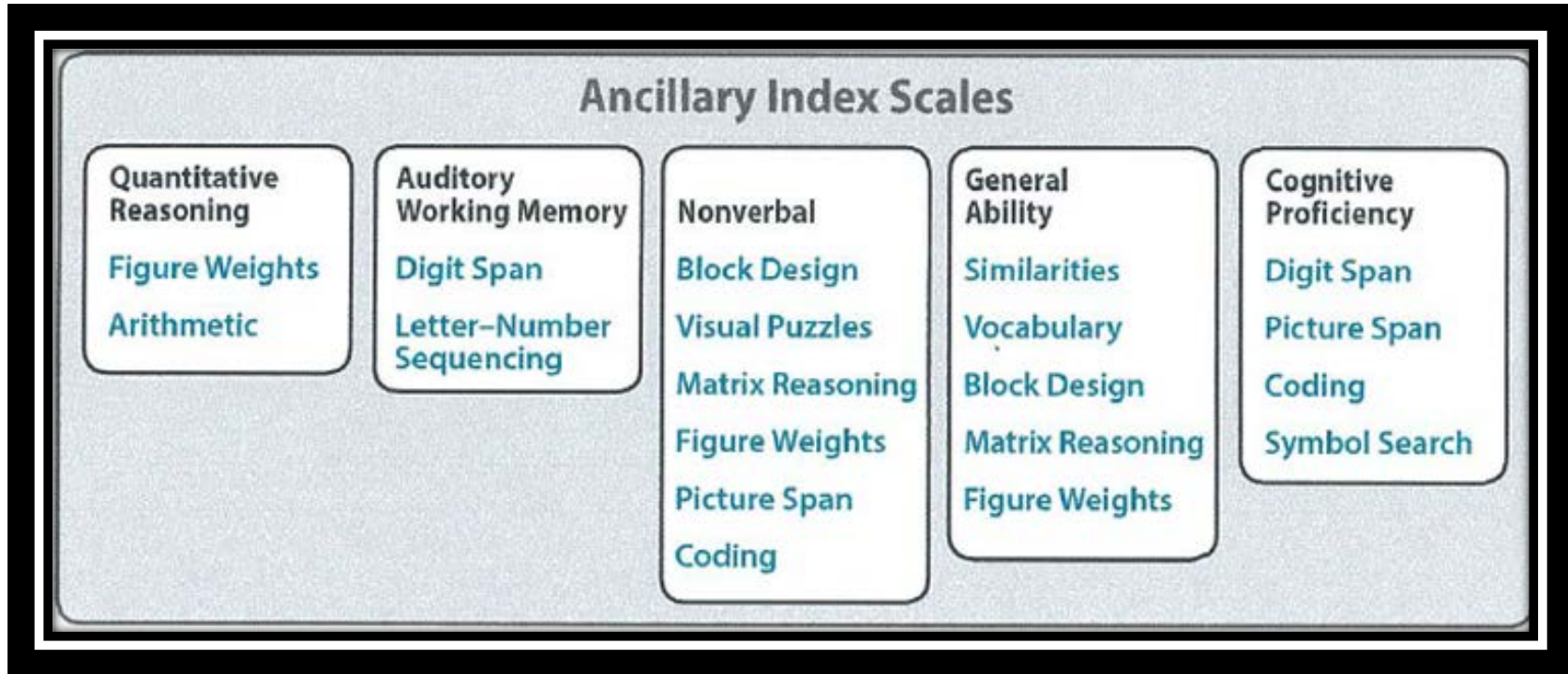
STI = 2 out of 3

# Test Structure – Primary Index Scales





# Test Structure – Ancillary Index Scales



# 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.

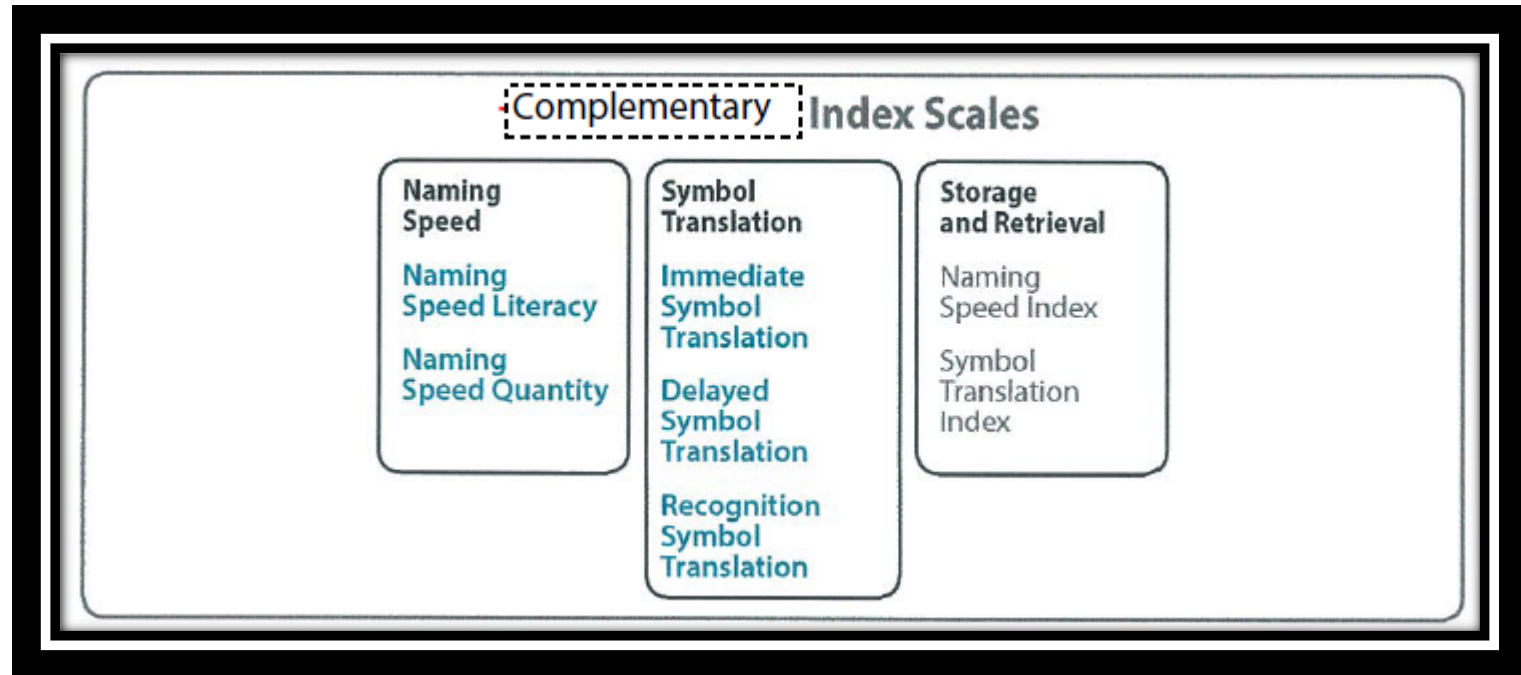
# Auditory Working Memory

- 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

## Full Scale

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

## Primary Index Scales

<b>Verbal Comprehension</b>	<b>Visual Spatial</b>	<b>Fluid Reasoning</b>	<b>Working Memory</b>	<b>Processing Speed</b>
Similarities	Block Design	Matrix Reasoning	Digit Span	Coding
Vocabulary	Visual Puzzles	Figure Weights	Picture Span	Symbol Search

## Ancillary Index Scales

<b>Quantitative Reasoning</b>	<b>Auditory Working Memory</b>	<b>Nonverbal</b>	<b>General Ability</b>	<b>Cognitive Proficiency</b>
Figure Weights	Digit Span	Block Design	Similarities	Digit Span
Arithmetic	Letter-Number Sequencing	Visual Puzzles	Vocabulary	Picture Span
		Matrix Reasoning	Block Design	Coding
		Figure Weights	Matrix Reasoning	Symbol Search
		Picture Span	Figure Weights	
		Coding		

## Complementary Index Scales

<b>Naming Speed</b>	<b>Symbol Translation</b>	<b>Storage and Retrieval</b>
Naming Speed Literacy	Immediate Symbol Translation	Naming Speed Index
Naming Speed Quantity	Delayed Symbol Translation	Symbol Translation Index
	Recognition Symbol Translation	

# Descriptive Classifications



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

# Evaluate Index-Level Strengths and Weaknesses

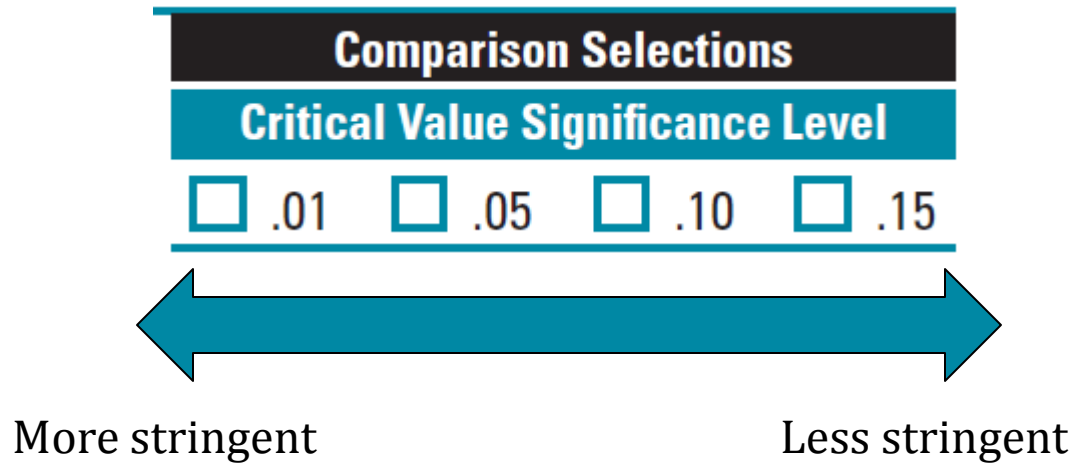
Strengths and Weaknesses							
		Score	Comparison Score	Difference	Critical Value	Strength or Weakness	Base Rate
Index Level	VCI	<input type="text"/>	- <input type="text"/>	= <input type="text"/>	<input type="text"/>	S or W	<input type="text"/>
	VSI	<input type="text"/>	- <input type="text"/>	= <input type="text"/>	<input type="text"/>	S or W	<input type="text"/>
	FRI	<input type="text"/>	- <input type="text"/>	= <input type="text"/>	<input type="text"/>	S or W	<input type="text"/>
	WMI	<input type="text"/>	- <input type="text"/>	= <input type="text"/>	<input type="text"/>	S or W	<input type="text"/>
	PSI	<input type="text"/>	- <input type="text"/>	= <input type="text"/>	<input type="text"/>	S or W	<input type="text"/>

Comparison Selections			
Comparison Score			
<input type="checkbox"/> MIS	Sum of 5 Index Scores	÷ 5 =	MIS
<input type="checkbox"/> FSIQ	FSIQ		
Critical Value Significance Level			
<input type="checkbox"/> .01	<input type="checkbox"/> .05	<input type="checkbox"/> .10	<input type="checkbox"/> .15
Base Rate Reference Group			
<input type="checkbox"/> Overall Sample	<input type="checkbox"/> Ability Level		



# Choosing the Level of Significance



# Primary Analysis: Subtest-Level Strengths and Weaknesses

Comparison Selections			
Comparison Score			
Sum of Scaled Scores for 10 Primary Subtests			
<input checked="" type="checkbox"/> MSS-P	14	÷ 10 =	MSS-P 14.6
Sum of Scaled Scores for 7 FSIQ Subtests			
<input type="checkbox"/> MSS-F	6	÷ 7 =	MSS-F
Critical Value Significance Level			
<input type="checkbox"/> .01	<input type="checkbox"/> .05	<input type="checkbox"/> .10	<input type="checkbox"/> .15

Critical Value Significance Level			
.01 <input type="checkbox"/>	.05 <input checked="" type="checkbox"/>	.10 <input type="checkbox"/>	.15 <input type="checkbox"/>
Base Rate Reference Group			
Overall Sample	Ability Level		

Subtest Level	Subtest	Score	MSS-P	Difference	Critical Value	Strength or Weakness	Base Rate
	Similarities	15	14.6	0.4	2.81	S or W	ns
	Vocabulary	17	14.6	2.4	2.23	S or W	ns
	Block Design	16	14.6	1.4	3.09	S or W	ns
	Visual Puzzles	15	14.6	0.4	3.07	S or W	ns
	Matrix Reasoning	15	14.6	0.4	2.62	S or W	ns
	Figure Weights	15	14.6	0.4	2.69	S or W	ns
	Digit Span	15	14.6	0.4	2.55	S or W	ns
	Picture Span	15	14.6	0.4	2.79	S or W	ns
	Coding	13	14.6	-1.6	2.95	S or W	ns
	Symbol Search	10	14.6	-4.6	3.05	S or W	5-10%

# Sample Subtest Pairwise Comparison

Subtest Level	Similarities – Vocabulary	SI	<input type="text"/>	-	VC	<input type="text"/>	=	<input type="text"/>	<input type="text"/>	Y or N	<input type="text"/>
	Block Design – Visual Puzzles	BD	<input type="text"/>	-	VP	<input type="text"/>	=	<input type="text"/>	<input type="text"/>	Y or N	<input type="text"/>
	Matrix Reasoning – Figure Weights	MR	<input type="text"/>	-	FW	<input type="text"/>	=	<input type="text"/>	<input type="text"/>	Y or N	<input type="text"/>
	Digit Span – Picture Span	DS	<input type="text"/>	-	PS	<input type="text"/>	=	<input type="text"/>	<input type="text"/>	Y or N	<input type="text"/>
	Coding – Symbol Search	CD	<input type="text"/>	-	SS	<input type="text"/>	=	<input type="text"/>	<input type="text"/>	Y or N	<input type="text"/>

Comparison Selections			
Critical Value Significance Level			
<input type="checkbox"/> .01	<input type="checkbox"/> .05	<input type="checkbox"/> .10	<input type="checkbox"/> .15

# Scaled and Standard Process Scores

**Table 1.4** Scaled and Standard Process Score Abbreviations and Score Type

Scaled or Standard Process Score	Abbreviation	Score Type
Block Design No Time Bonus	BDn	Scaled
Block Design Partial Score	BDp	Scaled
Digit Span Forward	DSf	Scaled
Digit Span Backward	DSb	Scaled
Digit Span Sequencing	DSs	Scaled
Cancellation Random	CAr	Scaled
Cancellation Structured	CAs	Scaled
Naming Speed Color-Object	NSco	Standard
Naming Speed Size-Color-Object	NSsco	Standard
Naming Speed Letter-Number	NSln	Standard

# 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

Longest Span and Sequence Score	Abbreviation
Longest Digit Span Forward	LDSf
Longest Digit Span Backward	LDSb
Longest Digit Span Sequence	LDSs
Longest Picture Span Stimulus	LPSs
Longest Picture Span Response	LPSr
Longest Letter–Number Sequence	LLNs

# Error Process Scores

Error Score	Abbreviation
Block Design Dimension Errors	BDde
Block Design Rotation Errors	BDre
Coding Rotation Errors	CDre
Symbol Search Set Errors	SSse
Symbol Search Rotation Errors	SSre
Naming Speed Literacy Errors	NSLe
Naming Speed Color–Object Errors	NScoe
Naming Speed Size–Color–Object Errors	NSscoe
Naming Speed Letter–Number Errors	NSlne
Naming Speed Quantity Errors	NSQe

# 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								
Comparison	Score 1		Score 2	Difference	Critical Value	Significant Difference	Base Rate	
BD-BDn	BD <input type="text"/>	-	BDn <input type="text"/>	= <input type="text"/>	<input type="text"/>	Y or N	<input type="text"/>	
BD-BDn	BD <input type="text"/>	-	BDn <input type="text"/>	= <input type="text"/>	<input type="text"/>	Y or N	<input type="text"/>	
Index Level	DSf-DSb	DSf <input type="text"/>	-	DSb <input type="text"/>	= <input type="text"/>	Y or N	<input type="text"/>	
	DSf-DSs	DSf <input type="text"/>	-	DSs <input type="text"/>	= <input type="text"/>	Y or N	<input type="text"/>	
	DSb-DSs	DSb <input type="text"/>	-	DSs <input type="text"/>	= <input type="text"/>	Y or N	<input type="text"/>	
	DSs-LN	DSs <input type="text"/>	-	LN <input type="text"/>	= <input type="text"/>	Y or N	<input type="text"/>	

Comparison Selections			
Critical Value Significance Level			
<input type="checkbox"/> .01	<input type="checkbox"/> .05	<input type="checkbox"/> .10	<input type="checkbox"/> .15

## Raw Score to Base Rate Conversion

Process Score	Raw Score	Base Rate
Longest Digit Span Forward (LDSf)	<input type="text"/>	<input type="text"/>
Longest Digit Span Backward (LDSb)	<input type="text"/>	<input type="text"/>
Longest Digit Span Sequence (LDSs)	<input type="text"/>	<input type="text"/>
Longest Picture Span Stimulus (LPSs)	<input type="text"/>	<input type="text"/>
Longest Picture Span Response (LPSr)	<input type="text"/>	<input type="text"/>
Longest Letter-Number Sequence (LLNs)	<input type="text"/>	<input type="text"/>

Discrepancy Comparisons					
Process Score	Raw Score 1	Raw Score 2	Difference	Base Rate	
LDSf-LDSb	<input type="text"/>	- <input type="text"/>	= <input type="text"/>	<input type="text"/>	
LDSf-LDSs	<input type="text"/>	- <input type="text"/>	= <input type="text"/>	<input type="text"/>	
LDSb-LDSs	<input type="text"/>	- <input type="text"/>	= <input type="text"/>	<input type="text"/>	

# Contrast Score example...Digit Span Forward versus Digit Span Backward

## DSf vs DSb Interpretive Summary

<u>DSfvDSb</u>	<u>DSf</u>	Interpretation Hypotheses
Low	Low	global attention difficulties, difficulties with mental manipulation
	Average	average attention, difficulties with mental manipulation, effortful processing
	High	good span, difficulties with mental manipulation
Average	All	mental manipulation ability is as expected given attention and basic span ability
High	Low	global attention difficulties, good mental manipulation of limited information
	Average	average attention, good mental manipulation, improved attention or strategy on <u>DSb</u>
	High	good span, good mental manipulation

# New Terminology

Subtest	Score Type	Category
BD	Scaled	Primary (FSIQ)
SI	Scaled	Primary (FSIQ)
MR	Scaled	Primary (FSIQ)
DS	Scaled	Primary (FSIQ)
CD	Scaled	Primary (FSIQ)
VC	Scaled	Primary (FSIQ)
FW	Scaled	Primary (FSIQ)
VP	Scaled	Primary
PS	Scaled	Primary
SS	Scaled	Primary

# New Terminology

Subtest	Score Type	Category
IN	Scaled	Secondary
PC	Scaled	Secondary
LN	Scaled	Secondary
CA	Scaled	Secondary
CO	Scaled	Secondary
AR	Scaled	Secondary

# New Terminology

Subtest	Score Type	Category
NSL	Standard	Complementary
NSQ	Standard	Complementary
IST	Standard	Complementary
DST	Standard	Complementary
RST	Standard	Complementary

# 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**

## Digital Format



**Automatic Scoring &  
Reporting via Q-interactive**

# Scoring: Paper/Pencil Format



## Hand-score

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



## Q-global Scoring & Reporting

- Web-based Scoring
  - Score Report
  - Combination Reports
  - Narrative Reports



# Scoring: Digital Format



## Automatic Scoring & Reporting via Q-interactive

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 1<sup>st</sup>, 2014

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