Hierarchy of WJ IV Score Levels and Interpretive Utility

Type of Information	Basis	Information and Scores	Uses
Qualitative	Observations during testing and analysis of responses	• Description of the individual's behavior during testing • Patterns of errors and correct responses within specific tasks • Strategies (efficient or inefficient, correct or erroneous) used to perform specific tasks	• Consideration of the possible effect of the individual's behavior on the obtained test scores • Prediction of the individual's behavior and reactions in instructional situations • Analysis of an individual's strengths, misunderstandings, and limitations regarding specific cognitive, linguistic, and academic skills; procedures; and knowledge • Instructional recommendations for specific skills
Level of Development (Norm Referenced)—Provides a general estimate of an individual's level of development or achievement in relation to age or grade	Sum of item scores Age or grade level in the norming sample at which the median score is the same as the individual's score	• Raw score • Test or cluster *W* score[1] • Age Equivalent (AE) • Grade Equivalent (GE)	• Reporting an individual's general level of achievement or development in a skill, ability, or area of knowledge compared with others in the norming sample • Monitoring an individual's progress within a specific skill or ability based on the *W* score
Proficiency (Criterion Referenced)—Indicates the quality of performance on criterion tasks of a given difficulty level	Distance of an individual's *W* score (*W* Ability) from the median *W* score obtained by the individual's age or grade-peers in the norming sample (the reference score, or Reference *W*)	• Quality of performance on specific tasks • Test or cluster *W* Difference (the difference between the individual's *W* Ability and the *W* Reference) • Relative Proficiency Index (RPI) • Cognitive Academic Language Proficiency (CALP) level • Instructional or Developmental Zone	• Likelihood of proficiency on tasks mastered by average age or grade-peers • Difficulty level at which the individual will perceive typical tasks to be manageable • Placement decisions based on a criterion of significantly strong or weak proficiency • Prediction of performance on similar tasks
Relative Standing in a Group (Norm Referenced)—Provides a basis for making peer comparisons	Relative position (A transformation of a difference score, such as dividing it by the standard deviation of the reference group)	• Rank order • Standard Score (SS)[1] (including T score, *z* score, Normal Curve Equivalent [NCE] Discrepancy SD DIFF) • Percentile Rank (PR) (including Discrepancy PR)	• Statement of the relative (ordinal) position of an individual's score, based on the standard deviation (SD), within the range of scores obtained by age- or grade-peers in the norming sample • Placement decisions based on a criterion of significantly high or low standing compared with one's peer group

[1] Rasch ability units; preferred metric for statistical analyses

Before discussing this level of scores, a clarification of the terms *mean* and *median* as used in the WJ IV might be helpful. Whereas a *mean* is often described as an arithmetic average, the WJ IV uses an advanced statistical method (i.e., bootstrapping) in which the Reference *W*, sometimes referred to as the mean, is the median of multiple medians taken from a large number of resamplings of smaller groups of a population. The Reference *W* of each group (age or grade) in the norming sample is the reference point with which all of the scores are compared. Consequently, in the following explanations of the Relative Proficiency Index (RPI), standard scores, and percentile ranks, the words *mean* and *Reference W* are used interchangeably. *The WJ IV Technical Manual* provides a comprehensive explanation of the bootstrapping procedure and the construction of the WJ IV norms. (See McGrew, LaForte, & Schrank, 2014, pp. 71–86.)

Relative Proficiency Index (RPI)

The Relative Proficiency Index (RPI) is derived from a mathematical prediction based on the normative data. It predicts the examinee's level of success (quality of performance) on tasks similar to those tested. It represents a person's expected percentage of proficiency, based on his or her test performance, for tasks that the reference (comparison) group (age or grade) would perform with 90% proficiency. The RPI is recorded as two numbers separated by a slash (/). The first number is the examinee's expected level of proficiency; the second number is always 90, the criterion of mastery. For example, Jeremy's Word Attack score of 47/90 indicates that when reading unfamiliar words, Jeremy's proficiency is likely to be 47% when his average age or grade-peer's proficiency is 90%.

The RPI is based on the *W* difference—the difference in *W* units, either positive or negative, between the examinee's *W* score on a test or cluster and the Reference *W* (the median score of the reference group). For example, a +30 *W* difference would result in an RPI of 100/90, whereas a −30 *W* difference would result in an RPI of 25/90.

Relative Proficiency Index, Standard Score, and the Standard Deviation

Test items do not increase in difficulty in exactly equal intervals. From item to item, the increase in difficulty level varies. Within a test, a subset of items that represents a period of rapid growth in a particular skill (e.g., basic reading skills from age 5 to 15) will increase in difficulty in relatively large increments. A subset of items that represents a period of slow or no growth in a skill (e.g., basic reading skills from age 15 to 25) will have smaller increases in difficulty between the items. The WJ IV Technical Manual (McGrew et al., 2014) shows illustrations of the growth curves for the cognitive, oral language, and academic achievement broad abilities (pp. 137, 139, 140). Accordingly, during a period in which a skill is developing rapidly, students in the norming sample are likely to have a wide variation in their scores (and proficiency), resulting in a large standard deviation. The larger the standard deviation, the wider the range of scores that could be encompassed by the middle 50%.

When interpreting the various WJ IV scores, consider that the RPI and standard score measure different aspects of performance. The RPI conveys the actual distance between the individual's score and the reference group median (in *W* units) and is not affected by the standard deviation. It displays the likelihood of success in similar tasks (i.e., the level of difficulty that the individual can manage) (qualitative) versus his or her standing in the reference group (i.e., where the score falls in the continuum of others at the same age or grade in the norming sample) (quantitative).

Table 1.3 shows the scores of a sixth-grade student named Leo on the tests of Letter-Word Identification (LWI) and Calculation. Note that above the double line, all of the numbers are the same. At Leo's grade level, both tests had the same median. He obtained the same *W* score on both tests, resulting in the same *W* Difference (491−515 = −24). Because the RPI is tied to the *W* Difference score, his RPI for both tests is also the same.

Figure 1.1 illustrates the relationship between the standard deviation and standard scores and the lack of relationship between the standard deviation and the RPI. Note that on both curves, the *W* units are in the same place but they no longer match the lines depicting standard deviations. Just like on a ruler, the numbers on the *W* scale do not shift position and always represent the same amount of change from one to another. The standard score numbers on the Letter-Word Identification curve are farther apart than they are on the

Table 1.3. Leo's Scores on the Letter-Word Identification and Calculation Tests (Jaffe, 2009)

Scores	Letter-Word Identification	Calculation
W ability	491	491
Mean	515	515
W Difference	−24	−24
RPI	39/90	39/90
SD	25	16
SS	86	78

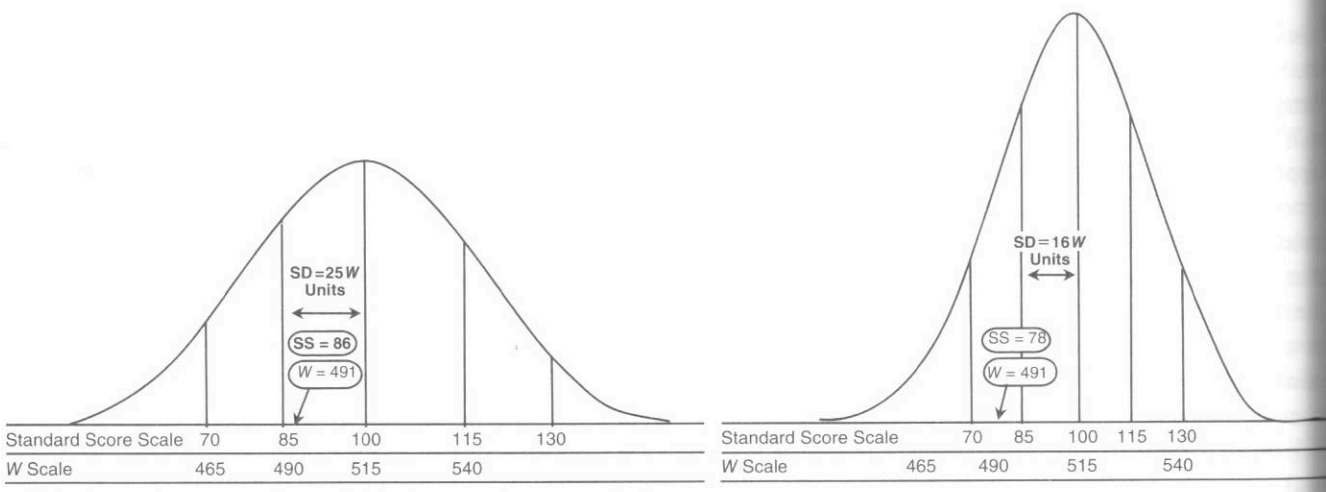

Figure 1.1 Comparison of Leo's Relative Proficiency Indexes, Standard Scores, and Standard Deviations on Two Tests.
Reprinted from *ASB #11 Development, Interpretation, and Application of the W Score and the Relative Proficiency Index*, by L. Jaffe, 20
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Note. When the size of the standard deviation changes, only the standard score changes. The *W* difference, and thus the RPI, does not cha

Calculation curve because the standard deviation is larger—25 *W* units versus 16 *W* units. Standard scores are a function of the number of standard deviations the obtained *W* score is from the Reference *W*, typically called the *mean*. First, because Leo's *W* difference is a negative number, his standard scores will be below the Reference *W*. For Letter-Word Identification, Leo's *W* difference (−24) is smaller than the standard deviation of 25, so it is within a standard deviation of the mean, translating to an SS of 86. For Calculation, Leo's *W* difference is larger than the standard deviation of 16, so it is more than 1 standard deviation below the mean, and translates to an SS of 78 (Jaffe, 2009).

Some test developers consider scores within one standard deviation of the mean as within the average range, indicating that no intervention is needed. Consequently, based on his standard score of 86, Leo might not be seen as needing help in word recognition, whereas his Calculation standard score of 78 would indicate that he was having some difficulty. On both tests, however, he scored 24 points below the mean of his grade-peers in the norming sample, translating to an RPI of 39/90. So, in actuality, Leo is doing equally poorly and needs intervention in both academic areas.

Because the mean, or Reference *W*, is known for every test (by age and grade), once a person's *W* ability is known, a mathematical prediction can be made regarding that person's likelihood of success at the level of difficulty at which a comparison group will score 90%, the criterion for mastery.

Table 1.4 shows the ranges of *W* difference scores and likelihood of a person demonstrating mastery on a task sim to the one assessed. The verbal labels describe the leve proficiency indicated by each RPI range and the level of or difficulty with which the student is likely to find the t For example, a student whose RPI is between 82/90 and 95 is demonstrating average success and is likely to find sim tasks at his or her age or grade level manageable. Higher R indicate increased facility with the task; lower RPIs indic less facility and a need for intervention. Note, however, that

Table 1.4. *W* Difference Values Associated with RPIs and Instructional Implications

W Difference	RPI	Proficiency	Instructional Implication
+31 and above	100/90	Very Advanced	Extremely ea
+14 to +30	100/90 to 98/90	Advanced	Very easy
+7 to +13	98/90 to 95/90	Average to Advanced	Easy
+6 to −6	95/90 to 82/90	Average	Manageable
−13 to −7	82/90 to 67/90	Limited to Average	Difficult
−30 to −14	67/90 to 24/90	Limited	Very difficul
−50 to −31	24/90 to 3/90	Very Limited	Extremely difficult
−51 and below	3/90 to 0/90	Extremely Limited	Nearly impossible

ranges overlap slightly. In each range, the highest RPI is the same as the lowest RPI in the next range, so that 82/90 represents both *Limited to Average* and *Average*. The evaluator must interpret these scores carefully. The student whose RPI is 82/90 is not likely to find a task as "manageable" as the student whose RPI is 90/90 or 95/90. Correspondingly, the student is not likely to find the task as difficult as someone whose RPI is 70/90.

Examiners may choose Proficiency as an option on the Score Report.

Comparative Language Index

The Comparative Language Index (CLI), a unique application of the RPI, is available in the WJ IV OL when the three parallel English and Spanish tests have been administered (Tests 1, 2, and 6 in English and Tests 10 through 12 in Spanish). The numerators of the RPI from the Broad Oral Language cluster and the comparable Amplio Lenguaje oral cluster are represented in a ratio. For example, if Jorge's RPI Amplio Lenguaje oral cluster was 95/90, and his Broad Oral Language cluster was (15/90), the Spanish/English CLI would be 95/15.

Cognitive-Academic Language Proficiency (CALP)

A CALP score is provided for all of the tests that measure English language proficiency, if this option is selected in the online scoring. As with the RPI, the CALP level is based on the *W* difference score. Five CALP levels predict how the student will perform on English language tasks when compared with others of the same age or grade. As illustrated in Table 1.5, the scores range from a CALP Level of 6: Very Advanced—the student will find the language demands in instructional situations to be extremely easy, to a CALP Level of 1: Extremely Limited—the student will find the language demands in instructional situations nearly impossible to manage.

Table 1.5. CALP Levels, Implications, and Comparisons with RPI Levels

W Difference	CALP Level		Instructional Implications: The learner is likely to find the language demands
–31 and above	6	Very Advanced	Extremely easy
–8 to +30	5	Advanced	Very easy
–7 to +3	4–5 (4.5)	Fluent to Advanced	Easy
–6 to –6	4	Fluent	Manageable
–13 to –7	3–4 (3.5)	Limited to Fluent	Difficult
–20 to –14	3	Limited	Very difficult
–28 to –21	2	Very Limited	Extremely difficult
–33 and below	1	Extremely Limited	Nearly impossible

Age/Grade Band Profiles

The WJ IV Age/Grade Band Profiles are special applications of the RPI. These bands extend from −10 *W* score units (easy) to +10 *W* score units (difficult), displaying the range between an RPI of 96/90 (easy) to an RPI of 75/90 (difficult). The person will find tasks that are below the lower point of the band to be easy and those above the higher point of the band to be difficult. The length of the bands on the Age/Grade Band Profile indirectly reflects the rate of growth of the measured trait in the population. Long bands are associated with a relatively slow rate of growth, whereas short bands reflect relatively rapid periods of growth. For example, a narrow band for the Letter-Word Identification test indicates that growth is rapid at the student's age or grade level, whereas a wide band for the Word Attack test indicates that growth takes place slowly during that developmental period.

The Age/Grade Band Profile displays the practical implications of the test or cluster scores (in contrast to the statistical implications displayed by the SS/PR Profiles). The developmental and instructional zones suggest the level at which tasks will be easy for a person and the level at which they will be difficult. The Age/Grade Band Profile may be used to describe a person's present level of functioning. Evaluators should remember, however, that the Age/Grade Band Profile is based on the performance of students in the norming sample. One must consider whether the examinee's performance on a particular test is below, at, or above the level of achievement expected at his or her educational institution, as well as where his or her level of achievement is in relation to the WJ IV Age/Grade Band.

Level 4: Comparison with Peers

Level 4 information indicates relative standing in the group when compared with age- or grade-peers.

Percentile Ranks (PR)

A percentile rank describes a student's relative standing in a comparison group on a scale of 1 to 99. The percentile rank

indicates the percentage of people from the comparison group who had scores the same as or lower than the person's score. A student's percentile rank of 68 indicates that 68% of the comparison group had scores the same as or lower than the student's score.

Extended percentile ranks provide scores down to a percentile rank of 0.1 and up to a percentile rank of 99.9. A student's percentile rank of 0.1 indicates that only 1 in 1,000 students in a reference group would score as low or lower. A student's percentile rank of 99.9 indicates that only 1 in 1,000 students would have a score as high, or that the person's score exceeded 999 people out of 1,000.

Standard Scores (SS)

A standard score describes a student's performance relative to the average performance of the comparison group. It is based on the average, or mean, score being assigned a value of 100, with a standard deviation, an indication of the variability of scores in the population, assigned a value of 15. The standard scores range from 40 to 160. Table 1.6 describes the standard score ranges, their equivalents in percentile ranks, and the descriptive label assigned to them.

Z Scores

A *z* is a standard score that has a mean of 0 and a standard deviation of 1. A (+) sign means that the score is above the mean (e.g., +2.0 means two standard deviations above the mean) and a (−) sign means that the score is below the mean (e.g., −2.0 means two standard deviations below the mean).

Standard Error of Measurement (SEM)

The standard error of measurement is an estimate of the amount of error attached to an individual's standard score, or how much one could expect a person's obtained score to vary from the true score if the person were administered the same test repeatedly. The WJ IV provides the unique SE associated with each possible score, rather than average SE based on the entire sample, a feature made possible by the use of Rasch scaling.

Table 1.6. Classification of Standard Score and Percentile Rank Ranges

Standard Score Range	Percentile Rank Range	WJ IV Classification
131 and above	98–99.9	Very Superior
121–130	92–97	Superior
111–120	76–91	High Average
90–110	25–75	Average
80–89	9–24	Low Average
70–79	3–8	Low
69 and below	0.1–2	Very Low

SCORE TERMINOLOGY AND EXPLANATION OF CLUSTER SCORES, VARIATIONS, AND COMPARISONS

Score Terminology

The explanations for the score terminology below are the same for both Variation and Comparison procedures.

Actual Standard Score (SS)

The examinee's obtained standard score on a cognitive, oral language, or achievement test or cluster.

Predicted SS

The standard score that the examinee was expected to obtain based on his or her performance on a specific cluster, composite, or a core set of tests. (See later discussion.)

SS Difference (SS Diff)

The SS Diff represents the Predicted SS subtracted from the Actual SS.

Discrepancy Standard Deviation (SD)

For each age and grade group in the norm sample, a score distribution is created of the SS Diffs of all individuals with the same Predicted SS as that of the examinee. The examinee's Discrepancy SD is represented as a *z* score indicating the position of the examinee's SS Diff within this distribution—its distance, positive or negative, from the mean SS Diff of the group.

Discrepancy Percentile Rank (PR)

The Discrepancy PR shows the percentage of individuals (same age or grade, same Predicted Score) who had the same or lower Diff SS as the examinee.

Interpretation at ±1.50 SD (SEE: Standard Error of Estimate)

If the user has chosen 1.5 in the Score Report options as indicating a significant difference, a Discrepancy SS of +1.5 SD or above is labeled as a significant strength, and −1.5 as a significant weakness. This type of difference would occur approximately 6 of 100 times. Thus, a Discrepancy PR of 6 and below would be a Weakness and a Discrepancy PR of 94 and above would be a Strength. A Discrepancy SD of ±1.5 is the default setting; the user has the option to change the level of significance.

Cluster Scores

The cluster score "indicates the likelihood, within a population, of obtaining a particular score or combination of scores" (McGrew, Werder, & Woodcock, 1991, p. 42). A cluster (or composite) score is not, however, the average of the standard scores of the tests that constitute it; rather, it represents an examinee's performance as compared with peers on the tests that make up the cluster. The cluster score is further from the mean, either positively or negatively, than the individual test scores that make up the cluster. Because it is more unusual for several scores within a cluster to be significantly above or below the mean, this occurrence is less frequent in the norm group. Thus, when a number of tests are below the mean, the cluster score reflects this infrequency by being lower; and when a number of tests are above the mean, by being higher. Because the WJ IV provides the same metric for both tests and clusters (e.g., standard score, percentile rank), people tend to notice differences between the test and cluster scores more readily than on tests that use different metrics at the test and cluster or composite level (e.g., scaled scores with a mean of 10 for the subtests along with standard scores with a mean of 100 for the composites). This phenomenon is also affected by the number of tests that compose the cluster and their intercorrelations (Paik & Schrank, 2011). The lower the intercorrelations between the tests, the more extreme the apparent discrepancy between the test scores and the cluster score will be.

Variations

Types of Variations (see Tables 1.7–1.10):

- Intra-Cognitive
- Intra-Oral Language
- Intra-Achievement
- Academic Skills/Academic Fluency/Academic Applications

Explanation of Variations

The scoring program provides variations for cluster and test scores within each battery. Each variation is based on a comparison between the examinee's actual standard score on a test or cluster (the target test/cluster) and the predicted score for the test or cluster. The degree of difference between the actual score and the predicted score has interpretive value, even if it is not significant. Variations are also provided for comparisons among the academic areas of skills, fluency, and applications.

Variation Predicted Score

Each battery has a set of core tests, and each core test represents one type of ability. The predicted score for any target test or cluster is the average of standard scores of the core tests, *excluding* the core test that represents the same type of ability as the test/cluster being predicted. The predicted score is then corrected for regression to the mean.

Table 1.7. Cognitive Variations

	Test Excluded from Averaging	Target Test	Target Cluster
Cognitive Ability Core Tests	Oral Vocabulary (*Gc*)	General Information Picture Vocabulary Oral Comprehension	Comprehension-Knowledge Comprehension-Knowledge–Ext Vocabulary Oral Language
	Number Series (*Gf*)	Concept Formation Analysis Synthesis Number Matrices	Fluid Reasoning Fluid Reasoning–Ext Quantitative Reasoning
	Verbal Attention (*Gwm*)	Numbers Reversed Object-Number Sequencing Memory for Words Sentence Repetition Understanding Directions	Short-Term Working Memory Short-Term Working Memory–Ext Auditory Memory Span
	Letter-Pattern Matching (*Gs*)	Number-Pattern Matching Pair Cancellation Rapid Picture Naming Retrieval Fluency	Cognitive Processing Speed Perceptual Speed Speed of Lexical Access
	Phonological Processing (*Ga*)	Nonword Repetition Segmentation Sound Blending	Auditory Processing Phonetic Coding
	Story Recall (*Glr*)	Visual-Auditory Learning	Long-Term Retrieval
	Visualization (*Gv*)	Picture Recognition	Visual Processing

OVERVIEW OF TESTS AND TASK DEMANDS (WJ IV COG, WJ IV OL, WJ IV ACH)

Table 1.16. Description of Tests and Task Demands for the WJ IV Tests of Cognitive Abilities

Test	Broad CHC Abilities Foundational Abilities	Stimuli	Task Demands	Response
Test 1: Oral Vocabulary	Comprehension-Knowledge (*Gc*) Vocabulary knowledge Word retrieval ability	Auditory (words)	Knowledge of antonyms and synonyms	Oral (word)
Test 2: Number Series	Quantitative Knowledge (*Gq*) Math reasoning Efficient retrieval of math facts	Visual (numbers)	Fill in the missing number in a series	Oral
Test 3: Verbal Attention	Short-Term Working Memory (*Gwm*) Auditory memory span Familiarity with numbers and names of animals	Auditory	Listen to a series of animals and numbers and answer a question	Oral
Test 4: Letter-Pattern Matching	Processing Speed (*Gs*) Perceptual Speed Ability to recognize common letter patterns Rapid visual scanning	Visual (letters)	Rapidly locating and circling identical letters of letter patterns from a defined row of letters	Motor (circling)
Test 5: Phonological Processing	Auditory Processing (*Ga*) Speech-sound discrimination Phoneme segmentation Phoneme blending Phoneme substitution Word retrieval Vocabulary knowledge	Auditory	A. Providing a word that has a given phonemic element in a specified location B. Naming as many things as possible in one minute that begin with a specified sound C. Substituting part of a word to create a new word.	Oral
Test 6: Story Recall	Long-Term Retrieval (*Glr*) Oral language comprehension Oral language production Meaningful memory	Auditory (stories)	Listening to and retelling details of stories	Oral (sentences)
Test 7: Visualization	Visualization (*Gv*) Spatial relationships Visual discrimination Figure-ground discrimination Visual sequencing Visual closure Visual-motor	Visual (abstract drawings and configurations of blocks)	A. Identifying the subset of pieces needed to form a complete shape B. Identifying the two matching sets of blocks within an array	Oral (letters) or motoric (pointing)
Test 8: General Information	Comprehension-Knowledge (*Gc*) Knowledge of one's environment and the world, generally learned incidentally Vocabulary knowledge	Auditory (questions)	A. Identifying where specified objects are found B. Identifying what people typically do with specified objects	Oral (sentences)
Test 9: Concept Formation	Fluid Reasoning (*Gf*) Inductive reasoning Comprehension of complex syntax Classification of drawings	Visual (drawings)	Identifying, categorizing, and determining rules	Oral (words)
Test 10: Numbers Reversed	Short-Term Working Memory (*Gwm*) Familiarity with number names Possibly, ability to visualize numbers	Auditory (numbers)	Holding a span of numbers in immediate awareness and then reversing the sequence	Oral (numbers)
Test 11: Number-Pattern Matching	Processing Speed (*Gs*) Perceptual speed Experience with numbers Rapid visual scanning	Visual (numbers)	Rapidly locating and circling identical numbers from defined rows of numbers	Motoric (circling)
Test 12: Nonword Repetition	Auditory Processing (*Ga*) Speech-sound discrimination Short-term working memory Auditory memory span	Auditory (nonsense words)	Repeating an orally presented nonsense word	Oral (words)

(*continued*)

Table 1.16 (*Continued*)

Test	Broad CHC Abilities Foundational Abilities	Stimuli	Task Demands	Response
Test 13: Visual-Auditory Learning	Long-Term Retrieval (*Glr*) Associative memory	Visual (rebuses) Auditory (words)—in the learning condition Visual (rebuses)—in the reading condition	Learning symbol-word associations and "reading" aloud sentences composed of the symbols	Oral (sentences)
Test 14: Picture Recognition	Visual-Spatial Thinking (*Gv*) Visual recognition memory	Visual (pictures)	Identifying a subset of previously presented pictures within a field of similar pictures	Oral (letter names) or motoric (pointing)
Test 15: Analysis-Synthesis	Fluid Reasoning (*Gf*) Deductive reasoning Short-term working memory	Visual (drawings)	Analyzing puzzles (using a given code) to determine missing components	Oral (words)
Test 16: Object-Letter Sequencing	Short-Term Working Memory (*Gwm*) Auditory memory span Auditory sequencing Familiarity with numbers and animal names	Auditory (words, numbers)	Holding a mixed set of numbers and words in immediate awareness while reordering into two sequences	Oral (words, numbers)
Test 17: Pair Cancellation	Processing Speed (*Gs*) Rapid visual scanning Visual sequencing	Visual (pictures)	Identifying and circling instances of a repeated pattern rapidly	Motoric (circling)
Test 18: Memory for Words	Short-Term Working Memory (*Gwm*) Auditory memory span	Auditory (words)	Repeating a list of unrelated words in correct sequence	Oral (words)

Table 1.17. Description of Tests and Task Demands for the WJ IV Tests of Oral Language

Test	CHC Broad Ability Foundational Abilities	Stimuli	Task Demands	Response
Test 1: Picture Vocabulary	Oral Expression (*Gc*) Vocabulary knowledge Word retrieval	Visual (pictures)	Giving the names of pictured objects	Oral (word)
Test 2: Oral Comprehension	Listening Comprehension (*Gc*) Language comprehension Vocabulary knowledge Word retrieval General knowledge	Auditory (text)	Completing an oral sentence by giving the missing key word that makes sense in the context	Oral (word)
Test 3: Segmentation	Auditory Processing (*Ga*) Phonological awareness: segmenting words into syllables Phonemic awareness: segmenting words into phonemes	Auditory (words)	Segmenting words into syllables and phonemes	Oral (word)
Test 4: Rapid Picture Naming	Processing Speed (*Gs*) Rapid automatic naming Word retrieval	Visual (pictures)	Recognizing objects, then retrieving and articulating their names rapidly	Oral (words)
Test 5: Sentence Repetition	Memory Span (*Gwm*) Auditory memory span Oral language comprehension Oral language production	Auditory (sentences)	Repeating sentences that increase in length and complexity	Oral (sentences)
Test 6: Understanding Directions	Listening Comprehension (*Gc*) Short-term working memory Comprehension of complex syntax Visual scanning of details in pictures	Auditory (sentences) Visual (pictures)	Listening to a sequence of instructions and then following the directions	Motoric (pointing)

Table 1.17 (*Continued*)

Test	CHC Broad Ability Foundational Abilities	Stimuli	Task Demands	Response
Test 7: Sound Blending	Auditory Processing (*Ga*) Phonological awareness: blending word parts Phonemic awareness: blending phonemes Speech-sound discrimination Auditory memory span Short-term working memory	Auditory (word parts and phonemes)	Synthesizing language sounds (word parts and phonemes)	Oral (word)
Test 8: Retrieval Fluency	Long-Term Retrieval (*Glr*) Ideational fluency Vocabulary knowledge Word retrieval	Auditory (directions only)	Naming as many examples as possible from given categories	Oral (words)
Test 9: Sound Awareness	Auditory Processing (*Ga*) Speech-sound discrimination Phonological awareness: rhyming Phonological and phonemic awareness: deletion	Auditory (word)	A. Providing rhymes for target words B. Deleting word parts and phonemes from words to make new words	Oral (word)

Table 1.18 Overview of the WJ IV Tests of Achievement

Test	Curricular Area Foundational Abilities	Stimuli	Task Demands	Response
Test 1: Letter-Word Identification	Reading (*Grw*) Reading, decoding (phonics and orthographic knowledge)	Visual (text)	Recognizing and naming printed letters and words	Oral (letter name, word)
Test 2: Applied Problems	Mathematics (*Gq*) Math reasoning Computation	Auditory (questions) Visual (numeric, text)	Translating orally presented word problems into computations and solving them	Oral
Test 3: Spelling	Spelling (*Grw*) Encoding Phonics knowledge Orthographic knowledge Visual-motor skill	Auditory (words)	Spelling orally presented words	Motoric (writing)
Test 4: Passage Comprehension	Reading (*Grw*) Reading comprehension Verbal (printed) language comprehension Vocabulary word retrieval	Visual (text)	Reading a sentence that has a missing key word, then giving a word that makes sense in the context	Oral (word)
Test 5: Calculation	Mathematics (*Gq*) Math computation	Visual (numeric)	Performing various mathematical calculations	Motoric (writing)
Test 6: Writing Samples	Writing (*Grw*) Sentence formulation Writing ability Visual-motor coordination	Auditory (directions) Visual (text and pictures)	Writing meaningful sentences in response to specific instructions	Motoric (writing)
Test 7: Word Attack	Reading (*Grw*) Reading decoding Phonetic coding Orthographic knowledge (knowledge of non-phonetic word parts)	Visual (word)	Reading nonsense words that conform to conventional spelling rules	Oral (word)
Test 8: Oral Reading	Reading (*Grw*) Phonics Word identification	Visual (sentences)	Reading aloud sentences that gradually increase in difficulty	Oral (sentences)
Test 9: Sentence Reading Fluency	Reading (*Grw*) Reading speed Reading comprehension	Visual (text)	Reading printed sentences rapidly and recognizing whether they make sense	Motoric (circling "yes" or "no")

(*continued*)

Table 1.18 *(Continued)*

Test	Curricular Area Foundational Abilities	Stimuli	Task Demands	Response
Test 10: Math Facts Fluency	Mathematics (*Gq*) Knowledge of math facts Math fact retrieval	Visual (numeric)	Writing responses to simple addition, subtraction, and multiplication problems as quickly as possible	Motoric (writing)
Test 11: Sentence Writing Fluency	Writing (*Grw*) Sentence formulation Writing speed	Visual (words with picture)	Rapidly formulating and writing simple sentences, incorporating a few given words	Motoric (writing)
Test 12: Reading Recall	Reading (*Grw*) Reading decoding Reading comprehension Meaningful memory	Visual (stories)	Reading brief stories and retelling the details	Oral (sentences)
Test 13: Number Matrices	Mathematics (*Gq*) Math reasoning Computation	Visual (numbers)	Identifying the patterns in a number matrix and filling in the missing numbers	Oral (numbers)
Test 14: Editing	Proofreading Skills (*Grw*) English usage (capitalization, punctuation, grammar) Spelling	Visual (text)	Identifying and correcting capitalization, punctuation, grammatical, and spelling errors in written passages	Oral
Test 15: Word Reading Fluency	Reading (*Grw*) Reading speed Vocabulary knowledge	Visual (words)	Reading rows of four printed words and circling the two words that go together	Motoric (circling)
Test 16: Spelling of Sounds	Spelling (*Grw/Ga*) Spelling ability Knowledge of phonics and orthographic generalizations	Auditory (letter, word)	Writing letter combinations and nonsense words that conform to conventional English spelling patterns	Motoric (writing)
Test 17: Reading Vocabulary	Reading (*Grw/Gc*) Vocabulary knowledge Expressive vocabulary Word retrieval	Visual (word)	Reading words and supplying synonyms and antonyms	Oral (word)
Test 18: Science	General information (*Gc*) Science knowledge Long-term retrieval Vocabulary knowledge	Auditory (question) Visual (text, picture)	Responding to questions about science	Motoric (pointing) or oral (word, sentences)
Test 19: Social Studies	General information (*Gc*) Social Studies knowledge Long-term retrieval Vocabulary knowledge	Auditory (question) Visual (text, picture)	Responding to questions about social studies	Motoric (pointing) or oral (word, sentences)
Test 20: Humanities	General information (*Gc*) Cultural knowledge Long-term retrieval Vocabulary knowledge	Auditory (question) Visual (text, picture)	Responding to questions about humanities	Motoric (pointing) or oral (word, sentences)