SECTION I

WJ III Descriptive and Interpretive Information

INTRODUCTION

The following score forms may be used to display and summarize an individual's test scores. The forms are followed by a chart that matches grade placement with chronological age. This chart is useful for determining the typical age for a given grade and whether disparities exist between grade placement and age. When differences exist (such as in the case of a retention), it is sometimes helpful to compare the individual's performance to both grade-peers and age-peers. Next, several tables are provided that describe the WJ III tests and the task requirements. These are followed by example test items for the WJ III COG and WJ III ACH. Because they are not actual items from the test, these sample items may be shared with a parent or teacher who is interested in knowing more about the nature or types of questions on the specific tests. The descriptive information includes an explanation of all the scores on the WJ III, with sample statements for reporting scores and describing the results from the discrepancy procedures. The last part of the section provides ideas for meaningful test comparisons, as well as tips for interpretation. These comparisons and tips can help an evaluator develop a diagnostic hypothesis to explain a particular pattern of test scores.

SAMPLE SCORE FORMS

The following score forms are intended to aid the evaluator in organizing the student's assessment results on the WJ III COG and WJ III ACH. The forms give the evaluator the choice of score level to use (i.e., qualitative, level of development, degree of proficiency, comparison with peers) and the level of specificity with which to analyze the results (test to factor/cluster). These forms are helpful for analysis of assessment results and as a visual framework for presenting this information to others.

Woodcock-Johnson III Tests of Cognitive Abilities: Clusters/Tests Score Form

Name: _____ Scores based on: Grade ____ Age ____ norms

Date of Birth: _____ Type of Score: SS___ %ile___ RPI___ Grade___ Age___

	Category/Factor	Scores		Standard Battery	Scores		Extended Battery	Scores	
Intellectual Ability	General Intellectual Ability			Verbal Comprehension			General Information		
				Visual-Auditory Learning			Retrieval Fluency		
				Spatial Relations			Picture Recognition		
				Sound Blending			Auditory Attention		
				Concept Formation			Analysis-Synthesis		
				Visual Matching			Decision Speed		
				Numbers Reversed			Memory for Words		
	Brief Intellectual Ability			Verbal Comprehension					
				Concept Formation					
				Visual Matching					
Cognitive Performance	Verbal Ability			Verbal Comprehension			General Information		
	Thinking Ability			Visual-Auditory Learning			Retrieval Fluency		
				Spatial Relations			Picture Recognition		
				Sound Blending			Auditory Attention		
				Concept Formation			Analysis-Synthesis		
	Cognitive Efficiency			Visual Matching			Decision Speed		
				Numbers Reversed			Memory for Words		
CHC Factors	Comprehension-Knowledge			Verbal Comprehension			General Information		
	Long-Term Retrieval			Visual-Auditory Learning			Retrieval Fluency		
	Visual-Spatial Thinking			Spatial Relations			Picture Recognition		
	Auditory Processing			Sound Blending			Auditory Attention		
	Fluid Reasoning			Concept Formation			Analysis-Synthesis		
	Processing Speed			Visual Matching			Decision Speed		
	Short-Term Memory			Numbers Reversed			Memory for Words		
Clinical Clusters	Phonemic Awareness			Sound Blending			[Sound Awareness]		
				Incomplete Words					
	Working Memory			Numbers Reversed					
				Auditory Working Memory					
	Broad Attention			Numbers Reversed			Auditory Attention		
				Auditory Working Memory			Pair Cancellation		
	Cognitive Fluency						Retrieval Fluency		
							Decision Speed		
							Rapid Picture Naming		
	Executive Processes			Concept Formation			Planning		
							Pair Cancellation		
	Delayed Recall						Visual-Auditory Learning–Delayed *z* score or PR		
							Story Recall–Delayed (ACH) *z* score or PR		
	Knowledge						General Information		
							Academic Knowledge (ACH)		

Mather, N., & Jaffe, L. (2002). *Woodcock-Johnson III: Reports, Recommendations, and Strategies.* New York: John Wiley & Sons.

Woodcock-Johnson III Tests of Achievement: Clusters/Tests Score Form

Name: _____ Scores based on: Grade ____ Age ____ norms

Date of Birth: _____ Type of Score: SS___ %ile___ RPI___ Grade___ Age___

Areas	Clusters	Scores		Standard Battery	Scores		Extended Battery	Scores	
Oral Language	Oral Language			Story Recall			Picture Vocabulary		
				Understanding Directions			Oral Comprehension		
	Listening Comprehension			Understanding Directions			Oral Comprehension		
	Oral Expression			Story Recall			Picture Vocabulary		
Reading	Broad Reading			Letter-Word Identification					
				Reading Fluency					
				Passage Comprehension					
	Basic Reading Skills			Letter-Word Identification			Word Attack		
	Reading Comprehension			Passage Comprehension			Reading Vocabulary		
Math	Broad Math			Calculation					
				Math Fluency					
				Applied Problems					
	Math Calculation Skills			Calculation					
				Math Fluency					
	Math Reasoning			Applied Problems			Quantitative Concepts		
Written Language	Broad Written Language			Spelling					
				Writing Fluency					
				Writing Samples					
	Basic Writing Skills			Spelling			Editing		
							[Punctuation & Capitalization]		
	Written Expression			Writing Fluency					
				Writing Samples					
Other Clusters	Academic Knowledge						Academic Knowledge		
	Phoneme/Grapheme Knowledge						Word Attack		
							Spelling of Sounds		
	Academic Skills			Letter-Word Identification					
				Spelling					
				Calculation					
	Academic Fluency			Reading Fluency					
				Writing Fluency					
				Math Fluency					
	Academic Applications			Passage Comprehension					
				Writing Samples					
				Applied Problems					
	Total Achievement			Letter-Word Identification					
				Reading Fluency					
				Passage Comprehension					
				Spelling					
				Writing Fluency					
				Writing Samples					
				Calculation					
				Math Fluency					
				Applied Problems					
	Supplemental Tests/Scores						Story Recall–Delayed *z* score or PR		
							Sound Awareness		
							Handwriting		

Mather, N., & Jaffe, L. (2002). *Woodcock-Johnson III: Reports, Recommendations, and Strategies.* New York: John Wiley & Sons.

Woodcock-Johnson III Tests of Cognitive Abilities: Cluster Descriptions and Scores

Name: _____

Grade:_____ Age:_____ Scores based on: Grade ____ Age ____ Norms

Factor/Cluster	Description	SS/PR	RPI	Level of Proficiency
Comprehension-Knowledge	General information and stores of acquired knowledge			
Long-Term Retrieval	Ability to store information efficiently and retrieve it later through associations			
Visual–Spatial Thinking	Ability to perceive, analyze, synthesize, and think with visual patterns, including the ability to store and recall visual representations			
Auditory Processing	Ability to analyze, synthesize, and discriminate auditory stimuli. Also related to phonological awareness			
Fluid Reasoning	Ability to reason, form concepts, and solve problems that often involve unfamiliar information or procedures			
Processing Speed	Speed and efficiency in performing automatic or simple cognitive tasks, visual scanning efficiency			
Short-Term Memory	Ability to hold orally presented information in immediate awareness and use it within a few seconds (memory span and working memory)			
Cognitive Fluency	Ease and speed by which an individual performs simple to complex cognitive tasks			
Executive Processes	Three aspects of executive functioning: strategic planning, proactive interference control, and the ability to shift mental set repeatedly			
Phonemic Awareness	Ability to analyze, synthesize, and manipulate speech sounds			
Working Memory	Ability to hold information in immediate awareness while performing a mental operation on the information			
Comments:				

Mather, N., & Jaffe, L. (2002). *Woodcock-Johnson III: Reports, Recommendations, and Strategies.* New York: John Wiley & Sons.

Woodcock-Johnson III Tests of Achievement: Cluster Descriptions and Scores

Name: _____

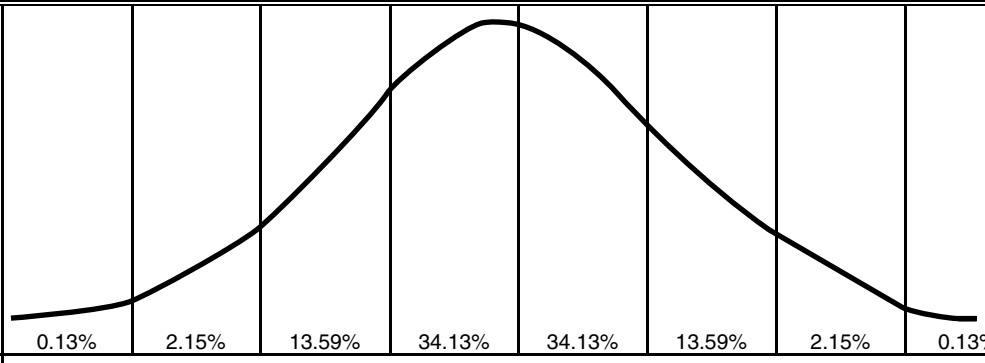
Grade:_____ Age:_____ Scores based on: Grade ____ Age ____ Norms

Cluster	Description	SS/PR	GE/RPI	Level of Proficiency
Broad Reading	Reading decoding, reading speed, and using syntactic and semantic cueing systems when reading for meaning			
Basic Reading	Sight vocabulary, phonics, and structural analysis skills			
Broad Math	Math achievement including problem solving, number facility, automaticity with facts, and reasoning			
Math Calculation Skills	Computational skills and automaticity with math facts			
Math Reasoning	Problem solving, concepts, and math vocabulary			
Broad Written Language	Spelling, writing rate, and written expression			
Written Expression	Quality of written sentences and fluency of production			
Academic Knowledge	Knowledge of science, social studies, and humanities			
Academic Skills	Basic academic skills			
Academic Fluency	Ease and speed by which an individual performs simple to more complex academic tasks			
Oral Language	Linguistic competency, listening ability, oral comprehension			
Comments:				

Mather, N., & Jaffe, L. (2002). *Woodcock-Johnson III: Reports, Recommendations, and Strategies.* New York: John Wiley & Sons.

Bell Curve Cluster/Test Comparison Chart

Name: _____ Date: _____



	0.13%	2.15%	13.59%	34.13%	34.13%	13.59%	2.15%	0.13%
z Scores	–4 SD	–3 SD	–2 SD	–1 SD	Mean	+1 SD	+2 SD	+3 SD +4SD
Standard Score Equivalents	40	55	70	85	100	115	130	145 160
Percentile Ranks		1	5	10	20 30 40 50 60 70	80	90	95 99
Score Ranges	Very Low		Low	Low Average	Average	High Average	Superior	Very Superior

Cluster / Test								

Standard Score Ranges: 131 and above = Very Superior; 121 to 130 = Superior; 111 to 120 = High Average; 90 to 110 = Average; 80 to 89 = Low Average; 70 to 79 = Low; 69 and below = Very Low.

Mather, N., & Jaffe, L. (2002). *Woodcock-Johnson III: Reports, Recommendations, and Strategies.* New York: John Wiley & Sons.

Developmental Band Profile Worksheet—WJ III Tests of Cognitive Abilities

Cognitive Factor/Clusters Cognitive Tests	Developmentally Difficult (weakness) RPI 75/90 & below	Developmentally Appropriate	Developmentally Easy (strength) RPI 96/90 & above
Comprehension-Knowledge (*Gc*)			
Verbal Comprehension			
General Information			
(Academic Knowledge—ACH)			
Long-Term Retrieval (*Glr*)			
Visual-Auditory Learning			
Retrieval Fluency			
Visual-Spatial Thinking (*Gv*)			
Spatial Relations			
Picture Recognition			
Auditory Processing (*Ga*)			
Sound Blending			
Auditory Attention			
Fluid Reasoning (*Gf*)			
Concept Formation			
Analysis-Synthesis			
Processing Speed (*Gs*)			
Visual Matching (1 or 2)			
Decision Speed			
Short-Term Memory (*Gsm*)			
Numbers Reversed			
Memory for Words			
Clinical Clusters	Developmentally Difficult (weakness)	Developmentally Appropriate	Developmentally Easy (strength)
Phonemic Awareness			
Sound Blending			
Incomplete Words			
(Sound Awareness—ACH)			
Working Memory			
Numbers Reversed			
Auditory Working Memory			
Broad Attention			
Numbers Reversed			
Auditory Attention			
Pair Cancellation			
Auditory Working Memory			
Cognitive Fluency			
Retrieval Fluency			
Decision Speed			
Rapid Picture Naming			
Executive Processes			
Concept Formation			
Planning			
Pair Cancellation			

Mather, N., & Jaffe, L. (2002). *Woodcock-Johnson III: Reports, Recommendations, and Strategies.* New York: John Wiley & Sons.

Developmental Band Profile Worksheet—WJ III Tests of Cognitive Abilities (*continued*)

Cognitive Performance Model	Developmentally Difficult (weakness)	Developmentally Appropriate	Developmentally Easy (strength)
Verbal Ability (Std)			
Verbal Comprehension			
Verbal Ability (Ext)			
Verbal Comprehension			
General Information			
Thinking Abilities (Std)			
Visual-Auditory Learning (*Glr*)			
Spatial Relations (*Gv*)			
Sound Blending (*Ga*)			
Concept Formation (*Gf*)			
Thinking Abilities (Ext)			
Visual-Auditory Learning (*Glr*)			
Retrieval Fluency (*Glr*)			
Spatial Relations (*Gv*)			
Picture Recognition (*Gv*)			
Sound Blending (*Ga*)			
Auditory Attention (*Ga*)			
Concept Formation (*Gf*)			
Analysis-Synthesis (*Gf*)			
Cognitive Efficiency (Std)			
Visual Matching (*Gs*)			
Numbers Reversed (*Gsm*)			
Cognitive Efficiency (Ext)			
Visual Matching (*Gs*)			
Decision Speed (*Gs*)			
Numbers Reversed (*Gsm*)			
Memory for Words (*Gsm*)			

Worksheet Instructions:
Use the Developmental Level Bands from the Student's Compuscore® (*Age/Grade Profile Selection in the "Reports" Menu*).
Place check marks in the appropriate column that shows whether a cluster/test is difficult, developmentally appropriate, or easy. The proficiency level (e.g., limited) can also be represented within each column.

Adapted from EDCS Inc., Barbara Read, Woodstock, VT. Unpublished.

Mather, N., & Jaffe, L. (2002). *Woodcock-Johnson III: Reports, Recommendations, and Strategies.* New York: John Wiley & Sons.

Instructional Zone Profile Worksheet—WJ III Tests of Achievement

Achievement Clusters Achievement Tests	Developmentally Difficult (weakness) RPI 76/90 & below	Developmentally Appropriate	Developmentally Easy (strength) RPI 96/90 & above
Broad Reading			
Letter-Word Identification			
Reading Fluency			
Passage Comprehension			
Basic Reading			
Letter-Word Identification			
Word Attack			
Reading Comprehension			
Passage Comprehension			
Reading Vocabulary			
Oral Language (Std)			
Story Recall			
Understanding Direction			
Oral Language (Ext)			
Story Recall			
Understanding Directions			
Picture Vocabulary			
Oral Comprehension			
Oral Expression			
Story Recall			
Picture Vocabulary			
(Academic Knowledge)			
(General Information—COG)			
Listening Comprehension			
Understanding Directions			
Oral Comprehension			
Broad Written Language			
Spelling			
Writing Fluency			
Writing Samples			
Written Expression			
Writing Fluency			
Writing Samples			
Basic Writing Skills			
Spelling			
Editing			
(Punctuation & Capitalization)			
(Spelling of Sounds)			

Mather, N., & Jaffe, L. (2002). *Woodcock-Johnson III: Reports, Recommendations, and Strategies.* New York: John Wiley & Sons.

Instructional Zone Profile Worksheet—WJ III Tests of Achievement (*continued*)

Clusters/Tests	Instructionally Difficult (weakness)	Instructionally Appropriate (average)	Instructionally Easy (strength)
Phoneme/Grapheme			
Word Attack			
Spelling of Sounds			
(Sound Awareness)			
Broad Math			
Math Calculation			
Math Fluency			
Applied Problems			
Basic Math Skills			
Math Calculation			
Math Fluency			
Math Reasoning			
Applied Problems			
Quantitative Concepts			
Cross Academic Clusters	Instructionally Difficult (weakness)	Instructionally Appropriate (average)	Instructionally Easy (strength)
Academic Fluency			
Reading Fluency			
Writing Fluency			
Math Fluency			
Academic Skills			
Letter-Word Identification			
Spelling			
Math Calculation			
Academic Applications			
Passage Comprehension			
Applied Problems			
Writing Samples			

Worksheet Instructions:
Use the Instructional Range Bands from the Student's Compuscore® (*Age/Grade Profile Selection in the "Reports" Menu*).
Place check marks in the appropriate column that shows whether a cluster/test is difficult, developmentally appropriate, or easy. The proficiency level (e.g., limited) can also be represented within each column.

Adapted from EDCS Inc., Barbara Read, Woodstock, VT. Unpublished.

Mather, N., & Jaffe, L. (2002). *Woodcock-Johnson III: Reports, Recommendations, and Strategies.* New York: John Wiley & Sons.

Results of the WJ III Cognitive Factors and Clusters by Standard Score Range

		CHC Factors	Cognitive Performance and Clinical Clusters
Very Superior	131>		
Superior	121–130		
High Average	111–120		
Average	90–110		
Low Average	80–89		
Low	70–79		
Very Low	55–69		
	<55		

Developed by B. J. Wendling, Dallas, TX. Unpublished.

Mather, N., & Jaffe, L. (2002). *Woodcock-Johnson III: Reports, Recommendations, and Strategies.* New York: John Wiley & Sons.

Results of the WJ III Achievement Clusters by Standard Score Range

		Broad Clusters	Basic Skills and Application Clusters
Very Superior	131>		
Superior	121–130		
High Average	111–120		
Average	90–110		
Low Average	80–89		
Low	70–79		
Very Low	55–69		
⬇	<55		

Developed by B. J. Wendling, Dallas, TX. Unpublished.

Mather, N., & Jaffe, L. (2002). *Woodcock-Johnson III: Reports, Recommendations, and Strategies.* New York: John Wiley & Sons.

Table I.1. Average Grade Placement for Age

Yrs.-Mos.	Average Grade Placement	Yrs.-Mos.	Average Grade Placement	Yrs.-Mos.	Average Grade Placement
5-1	0.0	9-6	4.2	14.0	8.5
5-2	0.1	9-7	4.3	14.1	8.6
5-3	0.2	9-8	4.3	14.2	8.7
5-4	0.3	9-9	4.4	14.3	8.8
5-5	0.3	9-10	4.4	14.4	8.9
		9-11	4.5	14.5	9.0
5-6	0.3	10-0	4.6	14.6	9.1
5-7	0.4	10-1	4.7	14.7	9.1
5-8	0.4	10-2	4.8	14.8	9.2
5-9	0.5	10-3	4.9	14.9	9.3
5-10	0.5	10-4	5.0	14.10	9.3
5-11	0.6	10-5	5.1	14.11	9.4
6-0	0.7	10-6	5.2	15-0	9.5
6-1	0.9	10-7	5.3	15-1	9.6
6-2	1.0	10-8	5.3	15-2	9.7
6-3	1.1	10-9	5.4	15-3	9.8
6-4	1.2	10-10	5.4	15-4	9.9
6-5	1.3	10-11	5.5	15-5	10.0
6-6	1.3	11-0	5.5	15-6	10.1
6-7	1.4	11-1	5.6	15-7	10.2
6-8	1.4	11-2	5.7	15-8	10.2
6-9	1.4	11-3	5.8	15-9	10.3
6-10	1.5	11-4	5.9	15-10	10.4
6-11	1.5	11-5	6.0	15-11	10.4
7-0	1.6	11-6	6.1	16-0	10.5
7-1	1.8	11-7	6.2	16-1	10.6
7-2	1.9	11-8	6.2	16-2	10.7
7-3	2.0	11-9	6.3	16-3	10.8
7-4	2.1	11-10	6.3	16-4	11.0
7-5	2.2	11-11	6.4	16-5	11.1
7-6	2.2	12-0	6.5	16-6	11.2
7-7	2.3	12-1	6.7	16-7	11.2
7-8	2.3	12-2	6.8	16-8	11.3
7-9	2.4	12-3	6.9	16-9	11.4
7-10	2.4	12-4	6.9	16-10	11.5
7-11	2.5	12-5	7.0	16-11	11.6
8-0	2.6	12-6	7.1	17-0	11.8
8-1	2.8	12-7	7.2	17-1	11.9
8-2	2.9	12-8	7.2	17-2	12.0
8-3	3.0	12-9	7.3	17-3	12.1
8-4	3.1	12-10	7.3	17-4	12.2
8-5	3.1	12-11	7.4	17-5	12.3
8-6	3.2	13-0	7.5	17-6	12.4
8-7	3.3	13-1	7.7	17-7	12.5
8-8	3.3	13-2	7.8	17-8	12.6
8-9	3.4	13-3	7.9	17-9	12.7
8-10	3.4	13-4	8.0	17-10	12.8
8-11	3.5	13-5	8.1	17-11	12.9
9-0	3.6	13-6	8.2		
9-1	3.7	13-7	8.2		
9-2	3.8	13-8	8.2		
9-3	3.9	13-9	8.3		
9-4	4.0	13-10	8.3		
9-5	4.1	13-11	8.4		

Table I.2. Score Equivalents and Classification Labels

Score	Mean	SD	Score	Mean	SD
Standard scores (SS)	100	15	Scaled score (ScS)	10	3
Percentile rank (PR)	50	NA	Stanine (Stan.)*	5	1.96
z score (*z*)	0.00	1.00	GRE-like scores (GRE)	500	100
T score (*T*)	50	10	*Shading indicates Stanine range		

WJ III Classif.**	SS	PR	*z*	*T*	ScS	Stan.	Wechsler Classif. **
	160	99.9	+4.00	90			
	159	99.9	+3.93				
	158	99.9	+3.87				
	157	99.9	+3.80	88			
	156	99.9	+3.73				
	155	99.9	+3.67				
	154	99.9	+3.60	86			
	153	99.9	+3.53				
	152	99.9	+3.47				
	151	99.9	+3.40	84			
	150	99.9	+3.33				
	149	99.9	+3.27				
	148	99.9	+3.20	82			
	147	99.9	+3.13				
Very	146	99.9	+3.07				
Superior	145	99.9	+3.00	80	19		Very
	144	99.8	+2.93				Superior
	143	99.8	+2.87				
	142	99.7	+2.80	78		**9**	
	141	99.7	+2.73				
	140	99.6	+2.67		18		
	139	99.5	+2.60	76			
	138	99	+2.53				
	137	99	+2.47				
	136	99	+2.40	74			
	135	99	+2.33		17		
	134	99	+2.27				
	133	99	+2.20	72			
	132	98	+2.13				
	131	98	+2.07				
	130	98	+2.00	70	16		
	129	97	+1.93				
	128	97	+1.87				
	127	96	+1.80	68			
	126	96	+1.73				
Superior	125	95	+1.67		15		Superior
	124	95	+1.60	66			
	123	94	+1.53			**8**	
	122	93	+1.47				
	121	92	+1.40	64			

Table I.2. (*continued*)

WJ III Classif.**	SS	PR	*z*	*T*	ScS	Stan.	Wechsler Classif. **
	120	91	+1.33		14		
	119	90	+1.27				
	118	88	+1.20	62			
	117	87	+1.13				
High	116	86	+1.07				High
Average	115	84	+1.00	60	13	**7**	Average
	114	82	+0.93				
	113	81	+0.87				
	112	79	+0.80	58			
	111	77	+0.73				
	110	75	+0.67		12		
	109	73	+0.60	56			
	108	70	+0.53			**6**	
	107	68	+0.47				
	106	66	+0.40	54			
	105	63	+0.33		11		
	104	61	+0.27				
	103	58	+0.20	52			
	102	55	+0.13				
	101	53	+0.07				
Average	100	50	0.00	50	10	**5**	Average
	99	47	–0.07				
	98	45	–0.13				
	97	42	–0.20	48			
	96	39	–0.27				
	95	37	–0.33		9		
	94	34	–0.40	46			
	93	32	–0.47			**4**	
	92	30	–0.53				
	91	27	–0.60	44			
	90	25	–0.67		8		
	89	23	–0.73				
	88	21	–0.80	42			
	87	19	–0.87				
	86	18	–0.93				
Low	85	16	–1.00	40	7	**3**	Low
Average	84	14	–1.07				Average
	83	13	–1.13				
	82	12	–1.20	38			
	81	10	–1.27				
	80	09	–1.33		6		
	79	08	–1.40	36			
	78	07	–1.47			**2**	
	77	06	–1.53				
	76	05	–1.60	34			
Low	75	05	–1.67		5		Borderline
	74	04	–1.73				
	73	04	–1.80	32			
	72	03	–1.87				
	71	03	–1.93				
	70	02	–2.00	30	4		

(*continued*)

Table I.2. (*continued*)

WJ III Classif.**	SS	PR	*z*	*T*	ScS	Stan.	Wechsler Classif. **
	69	02	–2.07				
	68	02	–2.13				
	67	01	–2.20	28			
	66	01	–2.27				
	65	01	–2.33		3		
	64	01	–2.40	26			
	63	01	–2.47				
	62	01	–2.53				
	61	0.5	–2.60	24		**1**	
	60	0.4	–2.67		2		
	59	0.3	–2.73				
	58	0.3	–2.80	22			
	57	0.2	–2.87				Intellectually Deficient (WISC-III)
	56	0.2	–2.93				
	55	0.1	–3.00	20	1		
Very Low	54	0.1	–3.07				Extremely Low (WAIS-III)
	53	0.1	–3.13				
	52	0.1	–3.20	18			
	51	0.1	–3.27				
	50	0.1	–3.33				
	49	0.1	–3.40	16			
	48	0.1	–3.47				
	47	0.1	–3.53				
	46	0.1	–3.60	14			
	45	0.1	–3.67				
	44	0.1	–3.73				
	43	0.1	–3.80	12			
	42	0.1	–3.87				
	41	0.1	–3.93				
	40	0.1	–4.00	10			

*The performance classification labels provided here are used by the WJ III, WISC III, and WAIS III. Other tests may use different classification labels.

Note: The WJ III separately computes Standard Scores and Percentile Ranks, so that the scores on the Compuscore may not be in precisely the same relationship as in Table I.16.

Adapted from

Dumont, R. P., & Willis, J. O. (2001). Score conversion tables for commonly used tests. Retrieved January 29, 2002 from Dumont and Willis on the Web: http://alpha.fdu.edu/psychology/

Willis, J. O., & Dumont, R. P. (1998). Guide to identification of learning disabilities (1998 New York State ed.) (pp. 240–241). Acton, MA: Copley.

Mather, N., & Jaffe, L. (2002). *Woodcock-Johnson III: Reports, Recommendations, and Strategies.* New York: John Wiley & Sons.

Table I.3. WJ III COG Construct and Content Coverage

Test	Primary Broad CHC Factor *Narrow CHC Ability*	Stimuli	Test Requirement	Response
Test 1: Verbal Comprehension	Comprehension-Knowledge (*Gc*) *Lexical knowledge* *Language development*	Visual (pictures); Auditory (words)	Naming objects; knowledge of antonyms and synonyms; completing verbal analogies	Oral (word)
Test 2: Visual-Auditory Learning	Long-Term Retrieval *(Glr)* *Associative memory*	Visual (rebuses)— Auditory (words) in the learning condition; Visual (rebuses) in the recognition condition	Learning and recalling pictographic representations of words	Oral (sentences)
Test 3: Spatial Relations	Visual-Spatial Thinking (*Gv*) *Visualization* *Spatial relations*	Visual (drawings)	Identifying the subset of pieces needed to form a complete shape	Oral (letters) or motoric (pointing)
Test 4: Sound Blending	Auditory Processing (*Ga*) *Phonetic coding: Synthesis*	Auditory (phonemes)	Synthesizing language sounds (phonemes)	Oral (word)
Test 5: Concept Formation	Fluid Reasoning (*Gf*) *Induction*	Visual (drawings)	Identifying, categorizing, and determining rules	Oral (words)
Test 6: Visual Matching	Processing Speed (*Gs*) *Perceptual speed* Visual scanning	Visual (numbers)	Rapidly locating and circling identical numbers from a defined set of numbers	Motoric (circling)
Test 7: Numbers Reversed	Short-Term Memory *(Gsm)* *Working memory*	Auditory (numbers)	Holding a span of numbers in immediate awareness while reversing the sequence	Oral (numbers)
Test 8: Incomplete Words	Auditory Processing (*Ga*) *Phonetic coding: Analysis*	Auditory (words)	Identifying words with missing phonemes	Oral (word)
Test 9: Auditory Working Memory	Short-Term Memory (*Gsm*) *Working memory*	Auditory (words, numbers)	Holding a mixed set of numbers and words in immediate awareness while reordering into two sequences	Oral (words, numbers)
Test 10: Visual-Auditory Learning—Delayed	Long-Term Retrieval (*Glr*) *Associative memory*	Visual (rebuses) in the recognition condition; Visual-auditory in the relearning condition	Recalling and relearning pictographic representations of words from 30 minutes to 8 days after initial presentation	Oral (sentences)
Test 11: General Information	Comprehension-Knowledge (*Gc*) *General (verbal) information*	Auditory (questions)	Identifying where objects are found and what people typically do with an object	Oral (sentences)
Test 12: Retrieval Fluency	Long-Term Retrieval (*Glr*) *Ideational fluency*	Auditory (directions only)	Naming as many examples as possible from a given category	Oral (words)
Test 13: Picture Recognition	Visual-Spatial Thinking (*Gv*) *Visual memory*	Visual (pictures)	Identifying a subset of previously presented pictures within a field of distracting pictures	Oral (words) or Motoric (pointing)
Test 14: Auditory Attention	Auditory Processing (*Ga*) *Speech-sound discrimination* *Resistance to competing auditory stimulus*	Auditory (words) Visual (pictures)	Identifying orally presented words amid increasingly intense background noise	Motor (pointing)
Test 15: Analysis-Synthesis	Fluid Reasoning (*Gf*) *General sequential (deductive) reasoning*	Visual (drawings)	Analyzing puzzles (using a given code) to determine missing components	Oral (words)
Test 16: Decision Speed	Processing Speed (*Gs*) *Semantic processing speed*	Visual (pictures)	Identifying and circling the two most conceptually similar pictures in a row	Motoric (circling)
Test 17: Memory for Words	Short-Term Memory (*Gsm*) *Memory span*	Auditory (words)	Repeating a list of unrelated words in correct sequence	Oral (words)
Test 18: Rapid Picture Naming	Processing Speed (*Gs*) *Naming facility*	Visual (pictures)	Recognizing objects, then retrieving and articulating their names rapidly	Oral (words)
Test 19: Planning	Visual-Spatial Thinking (*Gv*) & Fluid Reasoning (*Gf*) *Spatial scanning* *General sequential reasoning*	Visual (drawings)	Tracing a pattern without removing the pencil from the paper or retracing any lines	Motoric (tracing)
Test 20: Pair Cancellation	Processing Speed (*Gs*) *Attention and concentration* Visual scanning	Visual (pictures)	Identifying and circling instances of a repeated pattern rapidly	Motoric (circling)

Table I.4. WJ III ACH Construct and Content Coverage

Test	Curricular Area *Narrow CHC Ability*	Stimuli	Test Requirement	Response
Test 1: Letter-Word Identification	Reading (*Grw*) *Reading decoding*	Visual (text)	Identifying printed letters and words	Oral (letter name, word)
Test 2: Reading Fluency	Reading (*Grw*) *Reading speed*	Visual (text)	Reading printed statements rapidly and responding true or false (Yes or No)	Motoric (circling)
Test 3: Story Recall	Oral Expression (*Gc*) *Language development* *Listening ability* *Meaningful memory*	Auditory	Listening to and recalling details of stories	Oral (sentence)
Test 4: Understanding Directions	Listening Comprehension (*Gc*) *Listening ability* *Language development*	Auditory	Listening to a sequence of instructions and then following the directions	Motoric (pointing)
Test 5: Calculation	Mathematics (*Gq*) *Math achievement* *Number fluency*	Visual (numeric)	Performing various mathematical calculations; retrieving math facts	Motoric (writing)
Test 6: Math Fluency	Mathematics (*Gq*) *Math achievement*	Visual (numeric)	Adding, subtracting, and multiplying rapidly	Motoric (writing)
Test 7: Spelling	Spelling (*Grw*) *Spelling ability*	Auditory (words)	Spelling orally presented words	Motoric (writing)
Test 8: Writing Fluency	Writing (*Grw*) *Writing speed*	Visual (words with picture)	Formulating and writing simple sentences rapidly	Motoric (writing)
Test 9: Passage Comprehension	Reading (*Grw*) *Reading comprehension* *Verbal (printed) language comprehension*	Visual (text)	Completing a sentence by giving the missing key word that makes sense in the context.	Oral (word)
Test 10: Applied Problems	Mathematics (*Gq*) *Quantitative reasoning* *Math achievement* *Math knowledge*	Auditory (questions); Visual (numeric, text, pictures)	Performing math calculations in response to orally presented problems	Oral
Test 11: Writing Samples	Writing (*Grw*) *Writing ability*	Auditory; Visual (text, pictures)	Writing meaningful sentences for a given purpose	Motoric (writing)
Test 12: Story Recall—Delayed	Long-Term Retrieval (*Glr*) *Meaningful memory*	Auditory (sentence)	Recalling previously presented story elements	Oral (passage)
Test 13: Word Attack	Reading (*Grw*) *Reading decoding* *Phonetic coding: analysis & synthesis*	Visual (word)	Reading phonically regular non-words	Oral (word)
Test 14: Picture Vocabulary	Oral Expression (*Gc*) *Language development* *Lexical knowledge*	Visual (picture)	Naming pictures	Oral (word)
Test 15: Oral Comprehension	Listening Comprehension (*Gc*) *Listening ability*	Auditory	Completing an oral sentence by giving the missing key word that makes sense in the context	Oral (word)
Test 16: Editing	Writing Skills (*Grw*) *Language development* *English usage*	Visual (text)	Identifying and correcting errors in written passages	Oral
Test 17: Reading Vocabulary	Reading (*Grw*/*Gc*) *Verbal (printed) language Comprehension* *Lexical knowledge*	Visual (word)	Reading words and supplying synonyms and antonyms; reading and completing verbal analogies	Oral (word)
Test 18: Quantitative Concepts	Mathematics (*Gq*) *Math knowledge* *Quantitative reasoning*	Auditory (question); Visual (numeric, text pictures)	Identifying math terms and formulae; identifying number patterns	Oral (word)
Test 19: Academic Knowledge	*General information* (*Gc*) *Science information* *Cultural information* *Geography achievement*	Auditory (question); Visual (text; picture)	Responding to questions about science, social studies, and humanities	Motoric (pointing), Oral (word, sentences)
Test 20: Spelling of Sounds	Spelling (*Grw*/*Ga*) *Spelling ability* *Phonetic coding: Analysis & synthesis*	Auditory (letter, word)	Spelling letter combinations that are regular patterns in written English	Motoric (writing)
Test 21: Sound Awareness	Reading (*Ga*) *Phonetic coding*	Auditory (letter, word)	Providing rhyming words; deleting, substituting, and reversing parts of words to make new words	Oral (word)
Test 22: Punctuation & Capitalization	Writing (*Grw*) English usage	Auditory (question) Visual (letters, words)	Applying punctuation and capitalization rules	Motoric (writing)

Table I.5. Example Items for the WJ III Tests of Cognitive Abilities: Standard Battery

Test 1: Verbal Comprehension

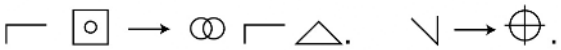
The test includes four orally presented tasks: Naming pictured objects, providing synonyms and antonyms, and completing analogies.

What are...
Tell me another word for "chase."
Tell me the opposite of "sit."
Pencil is to lead, as pen is to . . .

Test 2: Visual Auditory Learning

The task simulates a learning-to-read process. Symbols are first taught orally and then read in phrases and sentences.

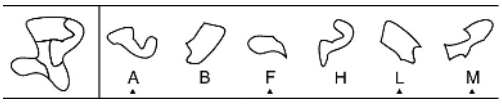
What does this say?



(This man is by the house.) (He is happy)

Test 3: Spatial Relations

The task involves identifying from a series of shapes the pieces needed to form the whole shape.



Test 4: Sound Blending (taped)

The task is to synthesize a series of orally presented sounds (syllables and/or phonemes) to form a whole word.

/b/a/s/k/e/t/ would be "basket."

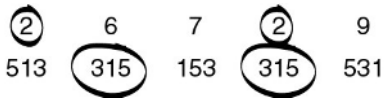
Test 5: Concept Formation

The task involves identifying and stating what is different about drawings that are inside a box from those that are outside the box.

Correct response: little and two
(The drawings inside the box are little and have two of each.)

Test 6: Visual Matching (timed)

The task is to match two identical numbers in a row. Numbers range from 1 to 3 digits.



Test 7: Numbers Reversed (taped)

Contains orally presented series of from 2 to 7 digits to be repeated in reverse order.

Item: 7-2-3-5
Correct: 5-3-2-7

Test 8: Incomplete Words (taped)

The task is to identify an orally presented word that is missing phonemes.

tur-le is "turtle"
com-u-ter is "computer" or "commuter"

Test 9: Auditory Working Memory (taped)

The task involves retaining two types of information (words and numbers) presented orally in a mixed order and then reordering that information and repeating first the words and then the numbers.

Item: boy – 1 – 4 – soap – 6
Correct: boy – soap – 1 – 4 – 6

Test 10: Visual-Auditory Learning—Delayed

The task is recalling, with corrective feedback, the visual-auditory associations from Test 2: Visual-Auditory Learning. The test may be presented after a delay of 20 minutes to 8 days.

Table I.6. Example Items for the WJ III Tests of Cognitive Abilities: Extended Battery

Test 11: General Information

There are two tasks: Identifying where specified objects would usually be found and telling what people would usually do with a specified object.

What do people usually do with a ladder?
Where would you usually find eyeglasses?

Test 12: Retrieval Fluency (timed)

The task is to name as many items in a given category as possible in 1 minute. Three categories are presented.

Name different things that you can wear. Name them as fast as you can. Begin.

Test 13: Picture Recognition

The task is to identify a subset of previously presented pictures within a larger set of pictures.

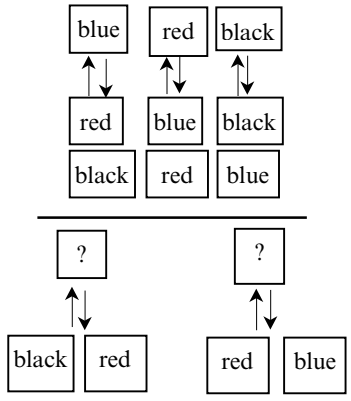
Which two did you see?

Test 14: Auditory Attention (taped)

The task is to differentiate among similar sounding words with increasing levels of background noise. A word is pronounced and the subject points to the picture that represents the word (example: dog, log, fog).

Test 15: Analysis-Synthesis

The task is to analyze the components of an incomplete logic puzzle and to name the missing components by using a colored key at the top of the page.



(Correct: blue) (Correct: red)

Test 16: Decision Speed (timed)

The task is to scan a row of seven pictures and then circle the two drawings that are the most closely associated.

Test 17: Memory for Words (taped)

The task is to repeat a list of unrelated words in the correct sequence.

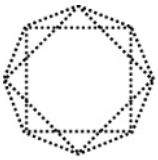
Repeat what I say: ruler, book, what

Test 18: Rapid Picture Naming (timed)

The task is to name pictures of common objects presented in rows as rapidly as possible.

Test 19: Planning

The task requires tracing a form, covering as many segments of a visual pattern as possible without retracing or lifting the pencil.



Test 20: Pair Cancellation (timed)

The task is to scan rows of three pictures (hot air balloon, tree, balloon) that are randomly repeated, and circle each instance of the target pair (hot air balloon, tree).

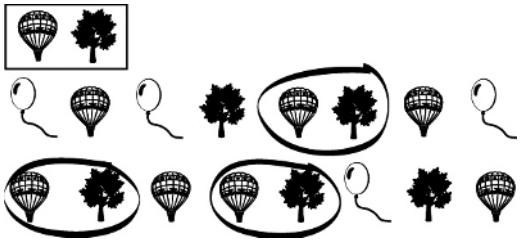


Table I.7. Example Items for the WJ III Tests of Achievement: Standard Battery

Test 1: Letter-Word Identification
The task requires identifying and pronouncing isolated letters and words.

g r cat palm

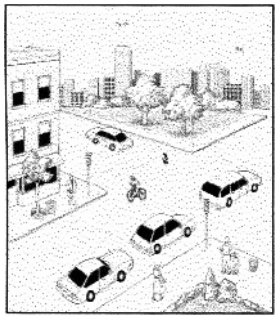
Test 2: Reading Fluency (timed)
The task requires rapidly reading and comprehending simple sentences.

The sky is green. YES (NO)
You can sit on a chair. (YES) NO
A bird has four wings. YES (NO)

Test 3: Story Recall (taped)
The task requires listening to passages of gradually increasing length and complexity and then recalling the story elements.

Martha went to the store to buy groceries. When she got there, she discovered that she had forgotten her shopping list. She bought milk, eggs, and flour. When she got home she discovered that she had remembered to buy everything except the butter.

Test 4: Understanding Directions
The task requires pointing to objects in a picture after listening to instructions that increase in linguistic complexity.



Point to the man on the bike. Go.

Before you point to the third car, point to the tree closest to a corner. Go.

Test 5: Calculation
The task includes mathematical computations from simple addition facts to complex equations.

2 + 4 = 3x + 3y = 15

Test 6: Math Fluency (timed)
The task requires rapid recall or calculation of simple, single-digit addition, subtraction, and multiplication facts.

8	7	6
–3	+7	· 9

Test 7: Spelling
The task requires the written spelling of words presented orally.

Spell the word "horn." She played the horn in the band. Horn.

Test 8: Writing Fluency (timed)
The task requires quickly formulating and writing simple sentences using three given words and a picture prompt.

books _____
likes _____
read _____

Test 9: Passage Comprehension
The task requires reading a short passage silently and then supplying a key missing word.

The boy _____ off his bike. (Correct: fell, jumped)

The book is one of a series of over eighty volumes. Each volume is designed to provide convenient _____ to a wide range of carefully selected articles.
(Correct: access)

Test 10: Applied Problems
The task involves analyzing and solving practical mathematical problems.

Bill had $7.00. He bought a ball for $3.95 and a comb for $1.20. How much money did he have left?

Test 11: Writing Samples
The task requires writing sentences in response to a variety of demands. The sentences are evaluated based on the quality of expression.

_____
_____

Write a sentence to describe the picture.

Test 12: Story Recall–Delayed
The task requires the student to recall, after a 30 minute to 8-day delay, the story elements presented in the Story Recall test.

Yesterday you heard some short stories. I am going to read a few words from the story and I want you to tell me what you remember about the rest of the story. "Martha went to the store…"

Table I.8. Example Items for the WJ III Tests of Achievement: Extended Battery

Test 13: Word Attack
The task requires pronouncing nonwords that conform to English spelling rules.

flib bungic

Test 14: Picture Vocabulary
The task requires naming pictured objects ranging from common to specialized.

What is this person holding?

(Correct: gavel)

Test 15: Oral Comprehension (taped)
The task requires listening to short passages and then supplying the missing final word.

Without a doubt, his novels are more complex than the novels of many other contemporary _____.
(Correct: writers, novelists)

Test 16: Editing
The task requires identifying and correcting errors in spelling, punctuation, capitalization, or word usage in short typed passages.

Bobby's face was so sunburned, it looked like he had fell into a bucket of red paint.
(Correct: fallen)

Test 17: Reading Vocabulary
The test involves reading words for three different tasks: providing synonyms, providing antonyms, and completing analogies.

What is another word for curious?
Tell me the opposite of civilized.
Finish what I say: Student is to boxer as study is to . . .

Test 18: Quantitative Concepts
The task requires applying mathematical concepts and analyzing numerical relationships.
Point to the largest duck.
What number belongs in this series: 1 2 6 __ 120
(Correct: 24)

Test 19: Academic Knowledge
The task involves answering questions about curricular knowledge in various areas of the biological and physical sciences, history, geography, government, economics, art, music, and literature.

On a musical scale, how many notes are in an octave?

Test 20: Spelling of Sounds
The task requires the written spelling of nonwords according to English spelling rules.

barches smuff

Test 21: Sound Awareness
The task includes four measures of phonological awareness (rhyming, deletion, substitution, and reversal).

Tell me a word that rhymes with goat. (rhyming)
(Correct: boat, wrote, any real word that rhymes)

Say the word "cat" without the /k/ sound. (deletion)
(Correct: at)

Change the /s/ in sack to /b/ . (substitution)
(Correct: back)

Say the sounds in the word "tire" backward. (reversal)
(Correct: right)

Test 22: Punctuation and Capitalization
The task requires using correct punctuation and capitalization in writing orally dictated words and phrases.

Write the month "September." (Scored for capitalization.)

Write the city and state "Chicago, Illinois."(Scored for comma.)

Mather, N., & Jaffe, L. (2002). *Woodcock-Johnson III: Reports, Recommendations, and Strategies.* New York: John Wiley & Sons.

EXPLANATION OF WJ III SCORES, INTERPRETIVE LEVELS, AND DISCREPANCIES

Level 1: Qualitative

Qualitative information is obtained through observation of behavior during testing, analysis of task demands, and error analysis of responses to test items. Qualitative information, though not a *score,* is a pivotal component for understanding and interpreting all scores obtained by the student. Oftentimes a description of how a student obtained a particular score is as important as the information provided by the score itself. Qualitative information is one of the critical components of proper individualized assessment and is an integral part of the reporting and interpretation of test results (see Table 9).

Task Analysis and Comparisons of Selected Tests

The basis for qualitative analysis of a test is generally twofold: task analysis and error pattern analysis. In task analysis, the evaluator analyzes the cognitive and academic demands of the task, including the subskills the student needs to perform the task proficiently. The similarities and differences between the task demands, compared with the student's demonstrated proficiency (or lack thereof) on each task, suggest the type of task demands that are either easy or difficult for the student. In error pattern analysis, the evaluator examines the errors the student made and the

Table I.9. Hierarchy of WJ III COG Test Information

Level	Type of Information	Basis	Information and Scores	Uses
1	Qualitative (Criterion-Referenced)	Observations during testing and analysis of responses	Description of subject's reaction to the test situation Performance on finely defined skills at the item content level	Appreciation of the subject's behavior underlying obtained test score Prediction of the subject's behavior and responses in instructional situations Specific skill instructional recommendations
2	Level of Development (Norm-Referenced)	Sum of item scores Age or grade level in the norming sample at which the median score is the same as the subject's score	Raw score *Rasch Ability score (Example: Test or cluster *W* score) Age Equivalent (AE) Grade Equivalent (GE)	Reporting a subject's level of development Basis for describing the implications of developmental strengths and weaknesses Basis for initial recommendations regarding instructional level and materials Placement decisions based on a criterion of significantly advanced or delayed development
3	Proficiency (Criterion-Referenced)	Subject's distance on a • Rasch scale from an age or grade reference point • Equal interval units; preferred metric for statistical analyses	Quality of performance on reference tasks Rasch Difference score (Example: Test or cluster *W* DIFF) Relative Proficiency Index (RPI) Cognitive Academic Language Proficiency (CALP) Level Instructional / Developmental Zone	Proficiency on tasks of average difficulty for peers Developmental level at which typical tasks will be perceived as easy, mildly challenging, or very difficult by the subject Placement decisions based on a criterion of significantly good or poor proficiency
4	Relative Standing in a Group (Norm Referenced)	Relative position (A transformation of a difference score, such as dividing by the standard deviation of the reference group)	Standard Scores Percentile Ranks *z* scores	Communication of a subject's competitive position among peers Placement decisions based on a criterion of significantly high or low standing

strategy he or she used in doing the task (possibly in lieu of exercising the necessary skills) to discern the subskill(s) that have not been mastered.

Task analysis is frequently used to obtain information about a student's skills and abilities *other* than the ability that is the intended target of the test or cluster. A test is designed to measure a certain ability, but at times one recognizes through more detailed analysis that the intended ability was not measured. As an example, the Working Memory cluster is intended to measure the ability to hold information in immediate awareness while performing a mental operation on it. Low scores on Auditory Working Memory and Numbers Reversed might, quite reasonably, lead the evaluator to diagnose difficulties in working memory. Task analysis, however, shows that both tests require the student to visualize numbers. Suppose that error analysis of Auditory Working Memory showed errors only on repetition of numbers but not on objects—a question should arise as to whether the problem is in memory or in the student's ability to visualize/work with numbers. That question can then be answered by checking the student's performance on other tests that require memory but no numbers, such as Memory for Words and Visual-Auditory Learning. Visual Matching and Calculation would provide additional information regarding facility with numbers. Task analysis and error pattern analysis, then, help evaluators to obtain valuable information that may, or may not, require further investigation.

Level 2: Level of Development

Level 2 information is derived directly from the raw score. This information indicates the level of development and is usually transformed to metrics that compare raw scores to age- or grade-level groups. Raw scores are then entered into the WJ III Compuscore and Profiles Program (Schrank & Woodcock, 2001) or the Report Writer for the WJ III (Schrank & Woodcock, 2002).

W *Scores*

W scores are intermediate scores for test interpretation. These scores do not appear on the computer printout unless the examiner chooses that option in Program Options. The *W*-scale is a special transformation of the Rasch ability scale and provides a common scale of equal-interval measurement that represents both a person's ability and the task difficulty. The *W*-scale for each test is centered on a value of 500, which has been set to approximate the average performance at age 10 years, 0 months. The *W* score for any cluster is the average *W* score for the tests included in the cluster. The *W* score is also used to plot the Age/Grade Profile, which illustrates Development Zones on the WJ III COG and Instructional Zones on the WJ III ACH (see Level 3: Degree of Mastery). The *W*-scale is particularly useful for the measurement of growth and can be considered a growth scale.

Age Equivalents (AE)

An age equivalent (AE), or age score, reflects the student's performance in terms of the age group in the norming sample in which the median raw score is the same as the student's raw score. If half the subjects of age 8-5 in the norming sample obtained a raw score of 20 or greater, and half the subjects of age 8-5 obtained a raw score of 20 or less, then the raw score of 20 is assigned the age equivalent of 8-5 (8 years, 5 months). All students, regardless of age, who obtain a raw score of 20 will have an 8-5 age equivalent assigned as their level of development. Age equivalents are expressed in years and months with a dash (-) as the delimiter. The age scale starts at 2-0 on some tests and 4-0 on the other tests, and extends to the age of peak median performance in the norming sample for each test.

Grade Equivalents (GE)

A grade equivalent (GE), or grade score, reflects the student's performance in terms of the grade level in the norming sample at which the median raw score is the same as the student's raw score. For example, if half the subjects in grade 3.6 in the norming sample obtained a raw score of 20 or greater, and half the subjects in grade 3.6 in the norming sample obtained a raw score of 20 or less, then the raw score of 20 is assigned the grade equivalent of 3.6 (third grade, sixth month). All students, regardless of age, who obtain a raw score of 20 will have a 3.6 grade equivalent assigned as their level of development. Grade equivalents are expressed in grade and month with a decimal point (.) as the delimiter. The grade scale ranges from <K.0 (below beginning kindergarten) to >18.0 (above beginning second year graduate school).

Level 3: Degree of Proficiency

Level 3 information indicates the quality of a student's performance on criterion tasks of known difficulty levels when compared to an age or grade reference group.

Relative Proficiency Index (RPI)

The Relative Proficiency Index (RPI) predicts a student's level of proficiency on tasks that typical age- or grade-peers (the reference group) would perform with 90% proficiency. For example, an RPI of 55/90 on the calculation test would indicate that, on similar math tasks, the student would demonstrate 55% proficiency, whereas average age- or grade-peers would demonstrate 90% proficiency. Interpretation guidelines, paralleling informal reading inventory criteria, are Independent Level (easy; 96/90 and above), Instructional Level (76/90 to 95/90); and Frustration Level (difficult; 75/90 and below).

RPIs are based on the W scale. The W scale is a special transformation of the Rasch ability scale (Rasch, 1960; Wright & Stone, 1979) and uses the same set of numbers for expressing both item difficulty and an individual's ability. As a consequence, the scale provides a mathematical basis for predicting performance based on the difference between a person's ability and difficulty of the task. WJ III users do not need to use W scores directly, although W scores can be provided by the Compuscore and Profiles Program, if desired.

For any skill or ability assessed, the RPI can document a performance deficit that may not be apparent in peer-comparison scores (e.g., standard scores, percentile ranks). When there appears to be a contradiction between interpretations of the standard score and the RPI, the evaluator must remember that these two kinds of scores are communicating different information and are not interchangeable. A common misconception is that peer-comparison scores indicate ability or achievement levels. In fact, peer-comparison scores do not provide direct information regarding a student's mastery of the skill or ability being assessed. Rather, they represent a rank ordering, indicating the position in which a student's score falls within the distribution of scores obtained by age- or grade-peers in the norming sample. Woodcock (1999) illustrates this difference as follows:

> Persons with visual or hearing problems are usually classified as handicapped or in need of special services because they have significant deficits in the quality of their visual or aural performance, not because they fall below some point on a norm-referenced criterion scale. On the other hand, mental retardation has been based primarily on a norm-referenced criterion such as having an IQ that falls in the lower 3% of the general population (below 70). (Woodcock, 1999)

Occasionally, an evaluator may note an *apparent* contradiction between a standard score and the RPI. For example, on the Letter-Word Identification test, Tommy, a second-grade boy, obtained a standard score of 92 (average, albeit at the lower end), a percentile rank of 30, and an RPI of 62/90 (limited). These scores suggest that, even though many other second-graders (30%) demonstrated equally limited or more limited sight vocabularies, Tommy's skills were nonetheless deficient compared to the average proficiency of second-graders. He requires additional attention to sight-word acquisition. This *apparent* discrepancy is more likely to be observed during a period of rapid growth in a skill or ability. Consequently, it is important to consider proficiency scores as well as peer-comparison to determine a student's need for services.

Sample descriptive statements reflect a Fluid Reasoning *W* difference of –10 for a male student.

> Proficiency: "His fluid reasoning ability is limited to average. . . ."
> Functionality: "His fluid reasoning ability is mildly impaired to within normal limits. . . ."
> Developmental: "His fluid reasoning ability is mildly delayed to age-appropriate. . . ."
> Implications: "He will probably find age-level tasks requiring him to identify categories and relationships among categories, make inferences, recognize and form concepts, and draw conclusions difficult."

Table I.10. Criterion-Referenced Interpretation of RPI Scores

W Diff Values	Reported RPIs	Proficiency	Functionality	Development	Implications
+31 and above	100/90	Very Advanced	Very Advanced	Very Advanced	Extremely Easy
+14 to +30	98/90 to 100/90	Advanced	Advanced	Advanced	Very Easy
+7 to +13	95/90 to 98/90	Average to Advanced	Within Normal Limits to Advanced	Age-appropriate to Advanced	Easy
–6 to +6	82/90 to 95/90	Average	Within Normal Limits	Age-appropriate	Manageable
–13 to –7	67/90 to 82/90	Limited to Average	Mildly Impaired to Within Normal Limits	Mildly Delayed to Age-appropriate	Difficult
–30 to –14	24/90 to 67/90	Limited	Mildly Impaired	Mildly Delayed	Very Difficult
–50 to –31	3/90 to 24/90	Very Limited	Moderately Impaired	Moderately Delayed	Extremely Difficult
–51 and below	0/90 to 3/90	Negligible	Severely Impaired	Severely Delayed	Impossible

Table I.11. Instructional Interpretation of RPI Levels

RPI	Instructional Level
96/90 and above	Independent
76/90 to 95/90	Instructional
75/90 and below	Frustration

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 software. As with the RPI, the CALP level is based upon the *W* score differences. CALP levels describe how the student will perform on English language tasks when compared with others of the same age or grade. As illustrated in Table 12, the scores range from a CALP Level of 5 (Advanced), where the student will find the language demands in instructional situations to be very easy, to a CALP Level of 1 (Negligible), where the student will find the language demands in instructional situations impossible to manage.

Age/Grade Profiles

The Instructional Zone in the WJ III ACH and the Developmental Zone in the WJ III COG are special applications of the RPI. These bands extend from –10 *W* score units (easy) to +10 *W* score units (difficult). These bands display the range between an RPI of 96/90 (easy) to an RPI of 75/90 (difficult). The student will find tasks that are below the lower point of the band to be quite easy, and those above the higher point of the band to be quite difficult. The length of these bands on the Age/Grade Profile indirectly reflects the rate of growth of the measured trait in the population. In a period of development when growth is rapid, the Developmental or Instructional Zone bands will be quite narrow; in a period of development when little growth occurs, the bands will be quite wide. For example, a narrow band for a second grade student on the Letter-Word Identification test indicates that growth in sight word acquisition is rapid at that grade level, whereas a wide band for a student in high school indicates that sight word acquisition takes place slowly during that developmental period.

The Age/Grade 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 that which tasks will be easy for a person and the level at which tasks will be difficult, and may be used to describe the student's present level of functioning.

Level 4: Comparison with Peers

Level 4 information indicates relative standing in the group when compared to 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 (see Table 13). The student's percentile rank indicates the percentage of students from the comparison group who had scores the same as or lower than the student'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 one-tenth (0.1) and up to a percentile rank of ninety-nine and nine-tenths (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 999 in 1,000 students in a reference group would score the same or lower.

Table I.12. CALP Levels, Implications, and Comparisons to RPI Levels

CALP Level		English Language Demands at Age or Grade Level	RPI
5	Advanced	Very Easy	98/90 to 100/90
4–5 (4.5)	Fluent to Advanced	Easy	96/90 to 97/90
4	Fluent	Manageable	82/90 to 95/90
3–4 (3.5)	Limited to Fluent	Difficult	68/90 to 81/90
3	Limited	Very Difficult	34/90 to 67/90
2–3 (2.5)	Very Limited to Limited	Very Difficult to Extremely Difficult	19/90 to 33/90
2	Very Limited	Extremely Difficult	5/90 to 18/90
1–2 (1.5)	Negligible to Very Limited	Extremely Difficult to Impossible	3/90 to 4/90
1	Negligible	Impossible	0/90 to 2/90

Table I.13. Classification of Standard Score and Percentile Rank Ranges

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

Standard Scores (SS)

A standard score describes a student's performance relative to the average performance of the comparison group. It is based on an average 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 range of standard scores is 0 to over 200.

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 to expect a person's obtained score to vary from his or her true score if the person were administered the same test repeatedly. The WJ III provides the unique SEM associated with each possible score, rather than average SEMs based on entire samples, a feature made possible by the use of Rasch scaling.

Discrepancy Terminology

Actual SS: The student's obtained standard score on a cognitive or achievement cluster.

Predicted SS: The meaning of the predicted score varies depending upon the type of discrepancy comparison. For the ability/achievement discrepancies, the predicted score may be based on four options: (a) GIA-Std (Tests 1–7); (b) GIA-Ext (Tests 1–7, 11–17); (c) Predicted Achievement; or (d) Oral Language. The GIA score is based on a weighted combination of tests that provides the best overall estimate of general intelligence (g). The highest g-weights are for tests of Gc and Gf. In contrast, the Predicted Achievement score is based on the differential weightings of WJ III COG Tests 1–7 that best predict achievement in specific curriculum areas. The fundamental difference between the GIA g-weights and the PA prediction weights is the criterion upon which the weights are derived. The GIA weights use an internal validity criterion: which weights provide for the best g-estimate within the cognitive battery. In contrast, the PA weights use an external validity criterion: which weights provide for the best prediction of a criterion (achievement) outside the cognitive battery.

These PA test weights vary differentially according to the relative importance of different cognitive abilities at different age or grade levels and achievement. For example, in predicting reading in a first-grade student, the Sound Blending and Visual Matching tests are weighted more, whereas for a high school student the Verbal Comprehension test is weighted more heavily. for the oral language procedure, the Oral Language-Ext cluster score in the WJ III ACH is used.

These predicted scores obtained from the GIA, PA, and Oral Language ability measures are not the same as the obtained scores. The predicted scores represent the best estimate of a person's expected achievement after the effects of regression to the mean are accounted for (a statistical phenomenon that occurs when one variable is used to predict another and the two variables are imperfectly correlated). The obtained score is what the person actually obtains. After regression to the mean is accounted for in the prediction, the predicted score represents the best estimate of what we would expect the person to achieve based upon the developmental level (age or grade) and the particular achievement domain.

For the intra-ability discrepancies (intra-cognitive, intra-achievement, and intra-individual), the predicted score is based on the average of the person's other scores, as well as the correlations among the measures. For example, on the intra-achievement discrepancy using the WJ III ACH Standard Battery, Broad Reading would be compared to the average of the student's performance in the other three areas: Broad Mathematics, Broad Written Language, and Oral Language.

Standard Score Difference (SS DIFF): The SS DIFF score represents the Predicted SS subtracted from the Actual SS.

Discrepancy Percentile Rank (PR): For the ability/achievement discrepancies, this score represents the percent of the WJ III norm sample that had an SS DIFF of this magnitude.

For the intra-ability discrepancies, this score represents the percent of the WJ III norm sample of the same age or grade, and with the same predicted score as the student's, that obtained an ability score the same as, or lower, than the student's.

Discrepancy Standard Deviation (SD): The Discrepancy SD score reports the SS DIFF divided by the standard error of estimate (SEE), the appropriate standard deviation statistic for this application. This statistic is derived from the distributions of SS DIFF found in the WJ III norm sample. For the ability/achievement discrepancies, the score represents the number of standard deviations the SS DIFF is from the Predicted SS. For the intra-ability discrepancies, this score represents the number of standard deviations the SS DIFF is from the average of his or her other abilities.

SAMPLE STATEMENTS FOR REPORTING SCORES AND SCORE DISCREPANCIES

These statements provide examples of ways to describe various test scores in reports. Words in brackets will vary, depending on the cognitive or achievement test or ability being discussed.

Score Levels Reported in Combination

Lara demonstrated Low Average to Average performance on [the WJ III Spelling test], with a grade equivalent of early grade 3, and an RPI of 62/90.

Kara's [Broad Written Language] score bridged the Low to Low Average ranges (SS 77–83) with a grade equivalent of early grade 3 and an RPI of 75/90. When average grade-peers have 90% success, Kara will have 75% success on similar tasks.

Tara's CALP Level of 5, as well as her RPI of 99/90, suggest that she will find the language demands in instructional situations to be very easy.

Level of Development (Grade Equivalent, Age Equivalent)

Dick's scores indicate that his level of functioning on [paired associate learning and retrieval tasks] is typical compared to grade-mates.

Maria's obtained grade score on the [Broad Reading cluster] was approximately beginning third grade (GE = 3.1).

The number of items Marcos answered correctly is comparable to the average student in early grade 7.

Test results indicate that Diane's performance is comparable to that of average 8-year-olds.

On [phonemic awareness tasks], Felicia scored similarly to students in mid-grade 2.

Sally is a fourth-grader who currently performs at the first-grade level in [math computation].

Margaret scored at mid-second grade level on [the Broad Reading cluster].

Lucas's instructional level for [word identification] was mid-grade 3.

Proficiency

Relative Proficiency Index

Mark's level of proficiency on [the Broad Mathematics cluster] was in the Limited range (RPI: 66/90).

Sam's RPI of 21/90 on the [Phoneme/Grapheme cluster] indicates that on similar tasks, in which the average fourth-grade student would demonstrate 90% proficiency, Sam would demonstrate 21% proficiency. Sam's knowledge of [phoneme-grapheme correspondence and spelling patterns] is very limited.

Jason's RPI on the [Verbal Comprehension test] was 75/90, suggesting that when average age-peers have 90% success on similar [expressive vocabulary and reasoning tasks], Jason will have 75% success. This score places his proficiency at the lower end of the instructional range.

Although Nicholas's obtained standard score on [the Mathematics Reasoning cluster] is within the Average range for seventh-grade students overall, his RPI (45/90) indicates that he will have more difficulty than most of his grade-peers in [math problem solving].

Manuel is predicted to demonstrate 2% mastery on [short-term memory tasks] that average age-peers would perform with 90% mastery (RPI: 2/90), indicating that his functioning in this area is severely impaired.

Renee's RPI of 98/90 on [Visual-Spatial Thinking] signifies advanced proficiency. When average age-peers demonstrate 90% accuracy on similar tasks, Renee's expected accuracy would be approximately 98%.

Even though Sheila's standard scores on both [Broad Reading and Broad Mathematics] are in the Low range com-

pared to other fifth-graders, her proficiency in [reading] (RPI 9/90) is markedly lower than her proficiency in [mathematics] (RPI 32/90).

Ben's performance on [Retrieval Fluency (RPI 90/90) and Rapid Picture Naming (RPI 88/90)] indicate that he has no difficulty with [rapid retrieval of familiar words from long-term memory].

David's RPI of 45/90 on [Short-Term Memory] represents a mild delay in the skills necessary for similar classroom tasks, such as [repeating a set of instructions to himself]. His expected success in doing so would be 45% compared with his classmates' 90%.

On a similar classroom task [reading one or two sentences and filling in the missing word], Bryn's proficiency would be within normal limits (RPI 82/90).

Although Luz scored considerably higher in [Quantitative Concepts] than in [Calculation and Fluency], her RPIs of 70/90 and 40/90 indicate that she will experience frustration in dealing with grade-level [math concepts and number relationships].

Geraldo's RPI of 84/90 indicates that his [academic knowledge] is comparable to that of his grade-peers.

Developmental and Instructional Zones

The Developmental Zone on the WJ III COG indicates that Martha will find tasks involving verbal comprehension to be easy at mid-grade 4 and frustrating at beginning grade 6.

The WJ III Age/Grade Profile indicates that appropriate instructional materials for teaching Jesse [word attack skills] would be early grade 2, and for [sight vocabulary and reading comprehension], early grade 3.

Stan's instructional zone indicates that he will find [reading] tasks to be easy at the beginning second-grade level and very difficult at the beginning third-grade level.

Ted's instructional zone on the WJ III Age/Grade Profile indicates that instructional materials in [basic writing skills] at beginning fourth-grade level will be very easy for Ted, while materials at mid-fifth grade level will be very difficult.

Appropriate instructional materials for June in basic mathematics and skills would range from beginning fifth-grade level [easy] to late fifth grade [instructional]. Materials at the early sixth-grade level would be frustrating for her.

Jared's performance on [Academic Applications] matches the median score of college sophomores on the tests of this cluster, suggesting that Jared would find instructional materials at the college sophomore level appropriately challenging.

Cognitive-Academic Language Proficiency

Kai met the criteria for fluency in all tests of oral language skills (CALP 4 to 4.5). He should find the English language demands of instruction at the twelfth-grade level manageable to easy.

Ingrid's CALP level of 2 on [the Verbal Ability cluster] indicates that she is very limited in [expressive vocabulary knowledge] and is likely to find the language demands of instruction related to English vocabulary at fourth-grade level extremely difficult.

Ruoli's performance on the WJ III Oral Language cluster (CALP level 1) suggests negligible functioning in [comprehension and expression of] English. Managing academic instruction in English, appropriate for 10-year-old native speakers, will be impossible for him.

Peer Comparison

Standard Score Ranges

Based on his standard score confidence bands, Jacob demonstrated performance commensurate with his age-peers on [the Oral Language–Extended cluster].

On the WJ III Total Achievement cluster, Bill's overall performance was in the Average range.

According to grade norms, Sara's level of achievement on the [Broad Reading cluster] falls in the Average range.

Juan's achievement in [basic writing] skills is Low Average for his grade.

Test results indicate that all of Jesse's [reading] abilities fall in the Low Average range when compared to grade-peers.

Oscar demonstrated Average ability to store [linguistic information] in memory and retrieve it later.

Kata's Average to High Average score on [Analysis-Synthesis] reflects her ability to [use deductive, linear logic for solving novel problems].

Fran's performance varied on the tests comprising the [Executive Processes] cluster. Her standard scores on the [Planning and Pair Cancellation] tests indicate a High Average level of ability when compared with her typical grade peers, whereas her performance was in the Low Average range on the [Concept Formation] test.

George's performance on the [Knowledge] cluster fell in the Low Average to Average range.

Max's [writing fluency, formulating and writing simple sentences quickly] bridges the High Average to Superior ranges (SS ± 1 SEM = 115–123).

TJ demonstrated a relative weakness in [word retrieval], scoring in the Low Average range on the [Rapid Picture Naming] test.

Nancy's overall [math] abilities, as represented by the [Broad Math] cluster score, are in the Low range with no significant discrepancies among the component tests of [Calculation, Math Fluency, and Applied Problems].

When Mr. Garibaldi was compared with the graduate school sample, his Comprehension-Knowledge factor score remained competitive (SS 114).

When compared with adults her age, Ms. Lancaster performed well within the Average range in each of the clinically relevant test clusters. In contrast, her scores decreased to the Low range when compared with the graduate school sample.

Lynne's Low to Low Average performance on [Applied Problems] reflects her apparent [confusion with math concepts].

Mariah demonstrated Superior [reasoning] skills, [using inductive and deductive logic to form concepts and solve problems using newly learned procedures (Fluid Reasoning: SS 127, PR 96)].

The WJ III SS/PR Profile indicates that Earl scored significantly higher on the [Broad Reading cluster] than he did on the [Broad Mathematics cluster].

Although in the Average range, Mariah's [visual-spatial] abilities appear to be significantly less well developed than her [reasoning/problem solving]. The separation of the confidence bands was [three] times the width of the SEM, whereas one is considered significant.

Rhia's standard score of 125 ± 5 indicates that her performance on the WJ III Broad Written Language cluster is in the Superior range.

Mary obtained a Broad Reading standard score of 98 ± 6. This score is within the Average range.

Martha scored in the Superior range on the Broad Reading cluster (SS ± 1 SEM: 119–131).

Tom's score on the Spelling test (SS ± 1 SEM: 98–110) was significantly higher than his score on the Writing Samples test (SS ± 1 SEM: 75–86).

Although Mark scored in the Low Average range on the Broad Mathematics cluster, his performance on the Calculation test (High Average) was significantly higher than his performance on the Applied Problems test (Very Low).

The statistically significant score discrepancy between the tests comprising the [Auditory Processing cluster (Sound Blending SS 125–132 vs. Auditory Attention SS 112–117)] are not considered to be educationally significant and do not warrant concern.

Percentile Ranks

Kay's percentile rank of 99.5 on the [Basic Math Skills cluster] indicates that only 5 out of 1,000 individuals of her age would have a score as high as or higher than hers.

On the [Broad Mathematics cluster], Sara scored at the 25th percentile, within the lower limits of the Average range.

Test results from the WJ III [Broad Mathematics cluster] indicated that Susan's overall [math] achievement is in the Low Average range (20th percentile).

Lawrence's frustration with classroom [writing] tasks is understandable given his obtained percentile rank of 3 on [Writing Samples]. Among students of his age, only 3 of 100 scored as low as or lower than he did on this test.

Glenda obtained a [Broad Reading cluster] percentile rank of 8 (SS = 78).

On the [reading] tests, a significant difference existed between Ruth's Low Average to Average performance on [Letter-Word Identification (PR ± 21–39)] and her Very Low to Low performance on [Passage Comprehension (PR ± 1–5)].

Bill's group standing in [problem-solving] ability (PR: 2) is significantly lower than his [calculation] skill (PR: 89).

Monica's [reading] skills (PR 98) are significantly higher than her mathematics skills (PR 10).

Angelica's [Auditory Working Memory] score was in the Low range, as low or lower than 94% of her grade-peers (PR 6).

Z Scores

The following *z* score statements are offered for use with reporting results of Visual-Auditory Learning—Delayed and

Story Recall—Delayed. These particular *z* scores represent the difference (if any) between a person's delayed recall score and the delayed recall scores of others of his or her grade or age who had obtained the same score on the first administration of the tests.

Theo's ability to recall key details in stories that had been read to him was equal to or better than 75% of his grade-peers (Story Recall, PR 75). His ability to retain this information and recall it later was significantly better (*z* score = +1.57) than those whose initial performance was similar to his.

Jesus performed in the Low Average range on a task requiring him to learn to associate words with a series of symbols. When asked to recall the words for the symbols a day later, he remembered about as many as would be predicted given his initial low performance (*z* score = +0.3).

Gerald's ability to recall key details of narrative information and associations between symbols and spoken words was in the Average range. Compared with grade-peers whose initial scores were the same as his, after several hours, his retention of word-symbol associations was similar; his recall of narrative details, however, significantly exceeded that of his grade-peers (+1.75 standard deviations).

Discrepancies

Intra-Ability Discrepancies

Jeanne does not demonstrate a significant discrepancy among the [four achievement] clusters.

When Bill's [Comprehension-Knowledge] cluster score is compared to his Average performance on the other six CHC factors, only 6 out of 100 students (PR: 6) would obtain a score as low as or lower than his.

When Sally's actual achievement score is compared to her predicted score, based upon the average of the other three achievement clusters, a significant discrepancy exists. Sally's Discrepancy Percentile Rank indicates that only 5% of the students of the same age and with the same predicted score would obtain a score as low as or lower than hers.

On the Intra-Individual Discrepancies, only 1 in 1,000 grade-peers (PR: 99.9) with Lila's same predicted [Broad Reading] score (the average of her other cluster scores) would obtain an actual [Broad Reading] score the same as or higher than hers.

In [Broad Written Language], only 3% of students whose predicted scores were the same as Alex's would obtain a standard score of 87 or lower.

Of Philip's grade-peers whose predicted standard scores were identical to his, only 2 out of 100 students would obtain a score as high as or higher than his actual standard score of 115 in [Broad Reading] (Discrepancy Percentile Rank = 98).

When D.J.'s [Broad Math] cluster standard score of 73 is compared to his average on the other three achievement clusters, only 1 out of 100 grade-peers with the same predicted score would have obtained a score as low as or lower than he did (Discrepancy PR = 0.1; SD Diff = –3.26).

Margaret evidences significant intra-individual strengths in [Auditory Processing and Phonemic Awareness] and weaknesses in [Processing Speed, Broad Reading, and Broad Math]. The likelihood of her age-peers with the same predicted score obtaining scores as high as or higher than hers is [1% for Auditory Processing and 3% for Phonemic Awareness]. In her areas of weakness, the probability of obtaining scores as low as or lower than hers, given the predicted scores, are [4% for Processing Speed and 3% for Broad Reading and Broad Math].

Michael's only significant Intra-Individual Discrepancy was in [Fluid Reasoning], indicating a severe deficit in [abstract, logical reasoning], compared to his other abilities. A discrepancy of this magnitude is found in only 1% of students of his age.

Ability/Achievement Discrepancies

No significant discrepancy exists between Shirin's General Intellectual Ability—Extended score and her present academic performance.

When Charlene's General Intellectual Ability—Extended (GIA-Ext) score is compared to her achievement, significant discrepancies exist between the GIA-Ext and [Basic Reading Skills]. Only 2 out of 100 individuals with a predicted standard score of 105 would obtain a score of 75 or lower.

When Jeff's predicted achievement standard score of 81 is compared to his actual achievement standard score of 55, only 1 out of 100 students (Discrepancy Percentile Rank = 1) would obtain a score the same or lower.

Current test results indicate that Spence has a significant discrepancy between his oral language abilities and his [reading] skills. When his Oral Language—Extended clus-

ter (SS = 104) is compared to his [Basic Reading Skills] (SS = 65), and [Reading Comprehension] clusters (SS = 74), only 1 and 2 out of 100 individuals, respectively, would score the same or lower.

Based on her General Intellectual Ability—Standard and Oral Language scores, Gina's [Broad Reading, Broad Math, and Math Calculation] scores are significantly below expectations.

The WJ III provides predicted achievement scores for each academic area based on different weightings of seven cognitive abilities according to the student's age. Gerald scored significantly lower than predicted in [Broad Reading (Standard Error of Estimate [SEE] = –2.55), Basic Reading Skills (SEE = –1.61), and Broad Written Language (SEE = –1.60)].

When compared to his overall intellectual ability, Patrick's achievement was significantly lower than predicted in [all areas of written language].

Jerome's difficulties learning to [pronounce words and spell] are unpredicted given his advanced oral language abilities and superior phonemic awareness skills.

[Broad Reading, Math Calculation, and Academic Knowledge] were significantly lower than predicted, suggesting that Robert's cognitive abilities are more advanced than his present levels of academic performance.

Integrating Statements

When presenting combinations of score statements and describing the scores themselves, think of the steps of the process as forming an inverse pyramid. The organization proceeds from broad-based scores (e.g., Total Achievement and clusters) to narrow-based scores (e.g., test scores). Discuss individual test scores when significant differences exist among the scores. Although the different scores provide different information, it is not necessary to report all types of scores in the body of a report. In discussing scores, begin with peer comparison scores (e.g., standard scores or percentile ranks), then RPIs, Instructional Zones, and age or grade equivalents, and finally information obtained from error analysis and observation. Figure 1 illustrates the progression for describing and reporting scores. The following paragraph provides an example:

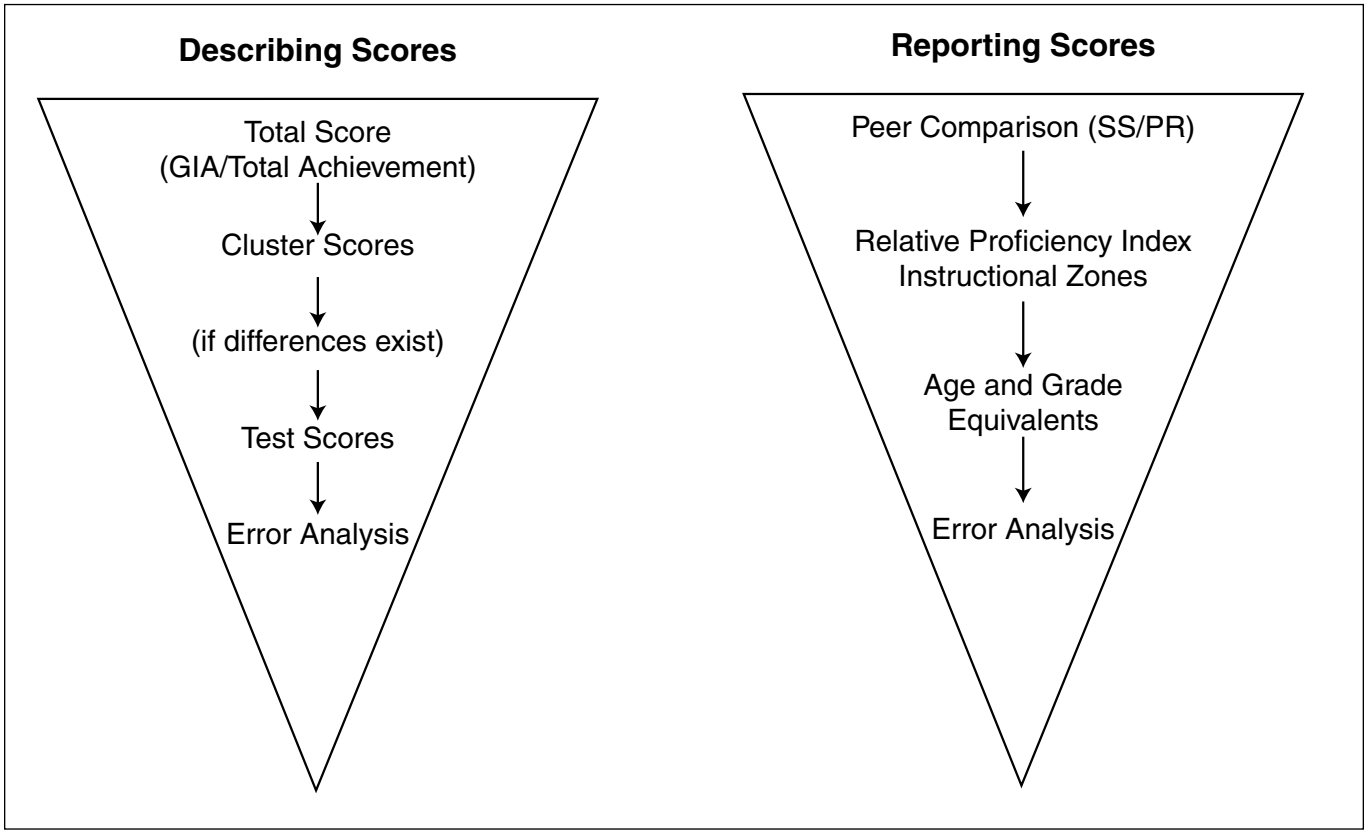


Figure I.1 Describing and Reporting Scores

Reading

On the WJ III ACH Broad Reading cluster, Kasey obtained a standard score of 66 (±1 SEM = 64–69). When Kasey's actual standard score in Broad Reading is compared to his predicted score (based on the average of the other three areas of achievement), only 1 out of 1,000 people would have obtained a score the same or lower. His Relative Proficiency Index of 5/90 indicates that when average grade-mates are having 90% success, Kasey will have approximately 5% success, performance well below the Frustration level. His grade scores on the Instructional Zone indicate that an easy level of reading for Kasey is mid–first grade, whereas a frustration level is beginning second grade. Although all reading scores were in the Low to Low Average range, Kasey's score on the Reading Fluency test, which requires rapid reading of simple sentences, was significantly lower than his scores on the Letter-Word Identification and Passage Comprehension tests. In general, many of Kasey's reading errors involved medial vowel sounds, such as pronouncing *must* as "mist." Even when accurate, his word recognition was slow. Kasey appeared to lack confidence in his reading ability, and he remarked during testing that reading has been difficult for him since first grade.

TEST COMPARISONS AND ERROR PATTERN ANALYSIS

This section offers suggestions for qualitative interpretation of the information available from the WJ III. Extensive and valuable information can be obtained from comparing a student's performance on various cognitive and achievement tests, based on similarities and differences in task demands, and from exploration of error patterns in item responses. Frequently, task analysis and error pattern analysis offer insights not obtainable from test scores alone regarding factors contributing to the student's difficulties and areas in need of further investigation.

The following test comparisons are not intended to be a complete or comprehensive listing of all of the possible task comparisons among the WJ III Tests of Cognitive Abilities and Tests of Achievement. They are illustrations of the qualitative information an evaluator can obtain from analysis at the individual test level. Both the table and the section that follow exemplify comparisons and possible performance implications when a difference of significance or probable significance exists between individual test scores within a cluster or between clusters—and sometimes, when they are all low. The section that follows, Tips for Interpretation, organized into cognitive and academic abilities assessed by the WJ III, provides additional suggestions for error pattern analysis.

When making test comparisons, consider scores that represent proficiency (RPI) as well as standing among peers (standard scores). For each student, the evaluator is cautioned to interpret the implications of the suggested test comparisons in the context of other test and cluster scores from the WJ III as well as performance on additional tests, behavioral observations, classroom performance, parent and teacher reports, and student self-perceptions.

Table 14, Task Analysis and Comparisons of Selected Tests from the WJ III, has five columns. *Test Names* simply lists the tests involved in the comparison. *Similarities* lists the task demands or required subskills that the tests share. *Differences,* divided into two columns, lists the task demands and required subskills that are not shared and, thus, are the basis for the comparison. *Possible Implications* lists the implications of the test comparisons. The italic print describes the possible relationship between/among the test scores. The test(s) listed on the left side of the > symbol has (have) the higher score(s); the test(s) to the right has (have) the lower score(s). The sentence below, in regular print, describes one or more possible reasons, related to the student's cognitive or academic abilities, for this pattern of performance. Each sentence begins with three dots as a reminder that the phrase "If [A > B], *consider* . . ." is implied.

Tips for Interpretation

If significant discrepancies exist between or among the individual test scores within a factor or cluster, report performance on the narrow abilities and, using task analysis and other test results, attempt to explain the reason for the difference between the scores. Also, consider how this information may alter your interpretation or use of the factor/cluster score.

Example case: Alyssa's Cognitive Fluency cluster score falls in the Low Average range, with Decision Speed in the Average range and Retrieval Fluency and Rapid Picture Naming in the Very Low range.

Using these and other test results, the evaluator determines that Alyssa has a specific problem in word retrieval, a weakness limited to language tasks and, for the most part, expressive language tasks. Although weak word retrieval certainly can inhibit cognitive fluency, the evaluator must

Table I.14. Task Analysis and Comparisons of Selected Tests from the WJ III Tests of Cognitive Abilities and Tests of Achievement

Test Names	Similarities	Differences		Possible Implications *If* [the following test pattern], *consider* . . .
Picture Vocabulary Verbal Comprehension	Retrieval of single words from long-term storage	Retrieval of simple name (PV)	Retrieval of words based on associations and reasoning (VC)	*Picture Vocabulary > Verbal Comprehension or both low* . . . limited breadth and depth of vocabulary knowledge . . . difficulties with word retrieval *Picture Vocabulary > Verbal Comprehension* . . . limited flexibility of word comprehension and usage
		Less linguistic complexity (PV)	More linguistic complexity (VC)	
Retrieval Fluency Rapid Picture Naming Picture Vocabulary	Retrieval of single words from long-term storage	Retrieval of a specific word (RPN, PV)	Broader choice of acceptable responses (RF)	*Retrieval Fluency > Rapid Picture Naming & Picture Vocabulary* . . . difficulty with specificity of word retrieval (finding a specific word) *Retrieval Fluency & Picture Vocabulary > Rapid Picture Naming* . . . difficulty with automaticity of word retrieval (finding a specific word fast) *Picture Vocabulary & Rapid Picture Naming > Retrieval Fluency* . . . difficulty with self-generation of multiple responses . . . lack of strategy use in generating multiple responses (e.g., thinking of animals by habitat: pets, farm, ocean)
		Time constraint (RF, RPN)	No time constraint (PV)	
		Words are well-established in long-term storage (RF, RPN)	Words are less familiar or not known (PV)	
		Retrieval of words from a picture prompt (RPN, PV)	Retrieval of words without a picture prompt (RF)	
Sound Blending Sound Awareness Incomplete Words	Phonemic awareness	Trainable skills (SB, SA)	Less trainable skill (IW)	*Sound Blending & Sound Awareness > Incomplete Words* . . . weakness in auditory closure *(Consider possibility of prior training in phonemic awareness with lesser innate ability)* *Low Sound Blending and Sound Awareness* . . . undeveloped phonemic awareness skills *Sound Blending > Sound Awareness* . . . difficulties with more advanced phonemic awareness skills (depends on age of student) *(Informally check ability to segment words into sounds; analyze errors on SA for level of breakdown)*
		Directly related to basic reading skills (SB, SA)	Less well-established relation to reading skills (IW)	
		Requires advanced skills (deletion, substitution, transposition, reversal) (SA)	Requires more basic skills (blending) (SB)	
Sound Blending Sound Awareness Auditory Attention	Require speech sound discrimination	Perception of individual speech sounds and sequence (intentional) (SB, SA)	Detection of speech sounds (automatic) (AA)	*Sound Blending, Sound Awareness > Auditory Attention or all low* . . . poor hearing acuity and/or speech discrimination
		Stimuli presented in quiet conditions (SB, SA)	Stimuli presented in adverse auditory condition (AA)	
Concept Formation Analysis-Synthesis	Problem solving with new procedures Logical reasoning Learning task with corrective feedback Increase in complexity	Analysis of multiple attributes of a problem to *infer the rule* governing its organization (inductive logic) (CF)	Use of *given rules* (i.e., a code) to solve a problem (deductive logic) (AS)	*Analysis-Synthesis > Concept Formation* . . . limited ability to hold in awareness and work with multiple attributes of a problem simultaneously . . . limited flexibility in problem solving . . . limited apperception of similarities and differences *Concept Formation > Analysis-Synthesis* . . . difficulty with application of rules or procedures
		Ability to hold many pieces of information in mind at once (simultaneous processing) (CF)	Ability to move step by step through a mental process (sequential processing) (AS)	
		Rule changes with each problem (CF)	Rules and method of solution (use of code) stay constant (AS)	

Table I.14. (*continued*)

Test Names	Similarities	Differences		Possible Implications *If* [the following test pattern], *consider* . . .
Concept Formation Applied Problems	Ability to hold and work with multiple elements of a problem Ability to apply inductive reasoning, including categorization of critical elements	Minimal need for knowledge of numeric concepts and procedures (CF)	Strong need for knowledge of numeric concepts and procedures (AP)	*Concept Formation & Applied Problems low* . . . weakness in basic reasoning and conceptual foundation for math, contributing to inability to see the logical relationships among the elements *Concept Formation > Applied Problems* . . . limited math knowledge, but good reasoning *(Check amount and type of prior instruction)*
Analysis-Synthesis Calculation	Application of rules and procedures Deductive reasoning	Minimal need for knowledge of numeric concepts and procedures (AS)	Strong need for knowledge of numeric concepts and procedures (C)	*Analysis-Synthesis & Calculation low* . . . weakness in procedural knowledge and difficulty with application of rules *Analysis-Synthesis > Calculation* . . . weakness in procedural knowledge and skills despite ability to follow a procedure and use deductive reasoning *(Check amount and type of prior instruction)*
Visual Matching Decision Speed Pair Cancellation	Rapid visual scanning Rapid visual processing Response mode	Picture stimuli (DS, PC)	Number/symbol stimuli (VM)	*Visual Matching, Decision Speed, & Pair Cancellation all low* . . . difficulty with visual scanning *(Consider ocular-motor functioning)* . . . slow processing speed *Decision Speed & Pair Cancellation > Visual Matching* . . . poor symbol discrimination . . . lack of familiarity with numbers
Visual Matching Numbers Reversed Auditory Working Memory Calculation Math Fluency	Inclusion of numbers in test content	Numbers held in memory (NR, AWM)	Numbers constant on page (VM, C, MF)	*Visual Matching, Calculation, Math Fluency > Numbers Reversed, Auditory Working Memory* . . . weakness in working memory . . . difficulty with mental visualization of numbers *(Analyze items on AWM to see if errors were solely, or mostly, on repetition of numbers, rather than things.)* *Visual Matching, Numbers Reversed, Auditory Working Memory > Calculation, Math Fluency* . . . limited knowledge and/or ability to apply math concepts and procedures
		Numbers used for non-mathematical purpose (NR, AWM, VM)	Requires math knowledge (C, MF)	
Memory for Words Numbers Reversed Auditory Working Memory	Short-term memory of unrelated stimuli (i.e., single words, numbers)	Number stimuli (NR, AWM)	Word stimuli (MW, AWM)	*All low* . . . weakness in short-term memory *Memory for Words > Numbers Reversed (& Auditory Working Memory—problem solely with number repetition)* . . . difficulty visualizing numbers *Memory for Words > Numbers Reversed > Auditory Working Memory* . . . difficulty in working memory corresponding to task complexity
		Higher demands on working memory (NR, AWM)	Lower demands on working memory (MW)	
Understanding Directions Story Recall Oral Comprehension	Comprehension of meaningful sentences	Critical elements share a meaningful linguistic context (SR, OC)	Critical elements are minimally related by meaning (UD)	*Oral Comprehension & Story Recall > Understanding Directions* . . . difficulty holding critical elements in memory outside of a cohesive meaningful context . . . difficulty comprehending and/or holding in memory complex syntax and multiple linguistic concepts (e.g., spatial, temporal, conditional) *Understanding Directions & Oral Comprehension > Story Recall* . . . weakness in organization of story elements in memory
		Comprehension and memory of syntax supported by meaning (SR, OC)	Comprehension and short-term memory of syntax not supported by meaning (UD)	
		Mode of response: verbal: single word (OC) verbal: phrases, sentences (SR)	Mode of response: pointing, nonverbal (UD)	

(*continued*)

Table I.14. (*continued*)

Test Names	Similarities	Differences		Possible Implications *If* [the following test pattern], *consider* . . .
Oral Comprehension Story Recall Passage Comprehension	Comprehension of connected discourse	Oral stimuli (listening) (OC, SR)	Written stimuli (reading) (PC)	*Oral Comprehension & Story Recall > Passage Comprehension* . . . difficulty with reading decoding *All low* . . . limited comprehension of oral language
Word Attack Letter-Word Identification Reading Fluency Passage Comprehension	Require skills in word attack and sight word acquisition	Reading decoding (WA, LWI, RF, PC)	Reading comprehension (RF, PC)	*Word Attack & Letter-Word Identification > Passage Comprehension* . . . poor reading comprehension *(RF might be strong or weak*) *Word Attack > Letter-Word Identification, Retrieval Fluency, Passage Comprehension* . . . poor sight word acquisition impairs fluency and comprehension. *Letter-Word Identification > Word Attack* . . . limited word attack skills creates dependence on whole word reading *(may limit future sight word acquisition)* *All low* . . . limited decoding (word attack and sight words) as a major factor in weak fluency and comprehension
Calculation Math Fluency Applied Problems	Require accurate retrieval of math facts Require understanding of basic math concepts	Knowledge of algorithms (C) Knowledge of simple facts (MF) Math reasoning (AP)		*Applied Problems > Calculation & Math Fluency* . . . weakness in procedural knowledge but good reasoning *(Look for inefficient and compensatory strategies)* *Math Fluency & Calculation > Applied Problems* . . . weakness in math reasoning *Calculation > Math Fluency, Applied Problems, Quantitative Concepts* . . . substitution of inefficient strategies for procedural knowledge and facts produces average or better score. *(Consider limited understanding of foundational concepts in math, procedural knowledge, and acquired math knowledge.)* *All low* . . . weakness in foundational concepts in math, procedural knowledge, and acquired math knowledge

determine the meaning of the broad score—if it continues to describe general cognitive fluency or if a distinction should be made between fluency in verbal versus nonverbal processes.

Analyze the task demands of the tests administered to the student relative to the quality of her performance. Look for any similarities between/among the task demands and subskills required by the tests on which the student performed well, in addition to similarities between/among the tests on which she performed poorly. Similarly, compare the differences between the task demands and subskills required on the tests on which she did well with those of the tests on which she did poorly. Examine also the types of errors made on test items, whether a pattern of errors exists, and strategies the student used as substitutes for the correct ones. Based on these comparisons, attempt to determine

the narrow abilities that appear strong throughout testing and those that appear weak. [For examples, see the section entitled Explanation of WJ III Scores, Interpretive Levels, and Discrepancies, Level 1: Qualitative: Task Analysis and Comparisons of Selected Tests.]

When making determinations about cognitive and/or academic strengths and weaknesses, check both the standardized scores and the Relative Performance Indexes. Both provide valuable, and different, information. For making recommendations about the instructional level of the materials, refer to the Instructional Zone band on the WJ III ACH. This band provides an estimate of an easy level to a difficult level. The grade equivalent is in the center of the Zone. Note any behavioral changes in response to tests with different formats, subject areas, or response requirements. For example, compare the student's attitude, persistence, and level of cooperation on timed versus untimed measures, oral versus written measures, cognitive versus academic tests, and in various skill areas (e.g., reading vs. math). A pattern of behavior change may provide clues as to task demands that are easy and those that are difficult.

Memory

Compare performance on associative memory tests that require both visual and auditory associations (e.g., Visual-Auditory Learning) to those that require only auditory memory (e.g., Memory for Words).

Compare performance on working memory tests (e.g., Numbers Reversed and Auditory Working Memory) to performance on tests that measure memory span (e.g., Memory for Words). If performance on memory span tests is higher, consider that the student may have more difficulty with divided attention than with rote sequential memory.

If performance is low on tests of meaningful memory (e.g., Story Recall, Understanding Directions), consider the possible effect of the student's level of acquired knowledge and language development on performance. Low performance may be more a reflection of lack of experience and exposure or limited language abilities than of poor memory.

Compare performance on tasks that involve retrieval of old learning (e.g., Picture Vocabulary, General Information) to those that involve storage and retrieval of new learning (e.g., Visual-Auditory Learning). High performance on old learning in contrast to low performance on new learning suggests difficulty with comprehending and/or storing new information.

Compare performance on measures of delayed recall to measures of immediate recall (e.g., Visual-Auditory Learning, Story Recall). Check scores to see if material is retained efficiently over time in comparison to scores of other students who performed similarly on the initial presentation. Also, compare the student's responses on initial and delayed recall regarding the number of elements retained and if the same or different elements were named.

Compare performance on short-term memory tests (e.g., Memory for Words, Numbers Reversed) to performance on tests that require meaningful memory (e.g., Story Recall, Understanding Directions). Check to see if memory improves when information is more contextual. The elements in Story Recall are presented with more context than those in Understanding Directions.

Cognitive/Academic Fluency/Processing Speed

If Reading Fluency, Math Fluency, and Writing Fluency are all low, compare the Academic Fluency cluster score to the Processing Speed and Cognitive Fluency cluster scores to determine whether the student has a generalized slow speed of processing or is only slow when tasks involve printed material.

Compare performance on tasks involving rapid visual scanning (e.g., Visual Matching, Pair Cancellation) to that on those tasks involving rapid word retrieval (e.g., Rapid Picture Naming). If all are low, consider that slow naming was secondary to slow scanning of the pictures. If visual scanning is fast and picture naming is slow, the problem is more likely in naming speed or word retrieval.

If all tests requiring rapid visual scanning of symbols and pictures are low (e.g., Visual Matching, Pair Cancellation, Reading Fluency), consider the possibility of visual or ocular-motor problems. Other behaviors that may indicate ocular-motor problems include losing the place, skipping lines, and using a finger or pencil to aid in tracking along a line.

Note on Visual Matching whether the student matches one or more transposed numbers (e.g., 16 and 61), or skips lines. These behaviors suggest inefficiency with scanning and may be related to problems with efficient processing of print.

Attention Deficit Hyperactivity Disorder (ADHD)/Behavior

Do not assume that strong performance on the tests of the Executive Processes cluster or Broad Attention cluster is a contraindication of ADHD. Although the student may have the cognitive abilities to discern rules, shift mindset,

plan a task, ignore visual distracters and, in general, effectively manage the task demands of the tests in the clusters during the test session, she may not be able to apply them consistently in practical situations. ADHD does not assume that these abilities are deficient—only that the affected person is not able to regulate their use volitionally and consistently.

Note difficulties with attention span, impulsive responses, lack of persistence, high activity level, and other behaviors indicative of ADHD that might affect test performance. Low scores on tests in which the student displays these behaviors may be more indicative of lack of considered thought than of a weakness in the skills being assessed.

Note the tests during which a student's ADHD-like behaviors increase. These may be the tests requiring skills that are most difficult for the student.

Review observations from the Test Session Observations Checklist on the front page of the Test Record. Target behaviors of concern to explore in more depth.

Note whether any behaviors or attitude adversely affected the student's performance (e.g., low frustration tolerance, poor attention, lack of persistence, impulsive responses, resentment towards testing) and note the possible effect in test results (e.g., "The student's low frustration tolerance appeared to affect his effort in the test situation. If he did not know an answer immediately, he refused to try to think it through and would not respond to encouragement. Consequently, his current scores may be an underestimation of his true abilities").

Record any comments the student makes indicating affective responses to tasks (e.g., "I hate math"), comments regarding school in general or any aspect of school (e.g., "The teacher always picks on me"), and comments about himself as a learner (e.g., "I never remember that," "I'm always the last one finished").

Oral Language

Although the tests of the WJ III are not sufficient to diagnose a primary language disorder, judicious comparisons of test results can provide strong indications as to generalized and specific language problems that would necessitate a referral to a Speech-Language Pathologist.

Compare the student's performance on Verbal Comprehension to Reading Vocabulary. If Verbal Comprehension and Reading Vocabulary are both low, consider that the student's limited oral vocabulary also limits his reading vocabulary. If the student's score on the oral test is high and the reading test low, consider that weak decoding skills prevent the student from demonstrating his word knowledge. In either case, check Picture Vocabulary, Letter-Word Identification, and Word Attack for additional diagnostic information.

Compare the student's responses on Story Recall, Writing Samples, and Writing Fluency as informal measures of sentence formulation. Behaviors on Story Recall that might indicate difficulties in this area include responses that indicate knowledge of the content but are poorly organized and unclear. Indicative behaviors on Writing Samples include omissions of keywords and sentence structure that is particularly simple (on the higher items) or has sufficiently awkward syntax to obscure the meaning of the sentence.

Compare the student's performance on tests of oral vocabulary (e.g., Verbal Comprehension, Picture Vocabulary) to tests of oral comprehension of connected discourse (e.g., Oral Comprehension, Story Recall, Understanding Directions). If vocabulary is significantly better than discourse comprehension, consider a weakness in comprehension of syntax and/or linguistic concepts. Serious weaknesses in short-term memory might also contribute to difficulties with comprehension.

Consider that limited oral vocabulary and background knowledge can be caused by limited reading experiences, especially from middle school on. If the student has poor basic reading skills, she is not reading, or comprehending, sufficient text from which to learn new words and information at the same rate as her age- or grade-peers.

Consider that the student may have a primary language disorder if all oral language tests are low (Verbal Comprehension, Picture Vocabulary, Sound Blending, Retrieval Fluency, Story Recall, Oral Comprehension, Understanding Directions), but tests that involve minimal oral language (e.g., simple instructions along with pictures) are higher (e.g., Spatial Relations, Visual Matching, Numbers Reversed, Picture Recognition, Decision Speed). Poor short-term memory for linguistic information (e.g., Memory for Words) is also likely to be low. Acquisition of academic knowledge, reading comprehension, and written expression are based on primary language ability and so are also likely to be low.

Compare the student's performance on Picture Vocabulary, Retrieval Fluency, and Rapid Picture Naming—all relatively simple tasks that require the student to retrieve

known words from long-term storage. If the student performs well on Picture Vocabulary but poorly on Rapid Picture Naming, consider a problem with word retrieval. Although both require retrieval of a specific word, only Rapid Picture Naming has a time constraint, increasing the need for automaticity of response. Although low Retrieval Fluency may reinforce the possibility of a word retrieval problem, average performance would not exclude it. Because Retrieval Fluency allows a broader range of acceptable responses, it may not be as sensitive as Rapid Picture Naming. Difficulty with both Rapid Picture Naming and Retrieval Fluency also could be related to speed of processing.

Phonological Awareness to Print

Keep in mind that the progression of phonological awareness is developmental. Generally, the progression is as follows:

- preschool: segmenting sentences into words;
- preschool to kindergarten: rhyming;
- kindergarten: segmenting words into syllables and deleting syllables;
- grade 1: blending, segmenting, deleting, and adding phonemes;
- grades 1–2: manipulation (e.g., substitution, transposition) of phonemes.

Many children are not able to perform the types of phoneme manipulation tasks measured in the WJ III Sound Awareness test until the end of second grade.

If Auditory Attention, Incomplete Words, Sound Blending, Sound Awareness, and Spelling of Sounds are all significantly weak, note whether or not the student had difficulty on the training items of Auditory Attention as well as during the noise condition. If so, and if she has not had a recent hearing test, request a screening for hearing acuity and speech discrimination to rule out a hearing loss. If these abilities are intact, consider a central auditory processing disorder. Look for other indications of misperceptions of speech or problems interpreting speech in compromised acoustic environments.

If a student has low performance on Sound Blending, determine if she can segment words into phonemes. Ask her to count the number of sounds that she hears in various words. Include words she can spell but in which the number of letters does not match the number of sounds (e.g., fox [4], cow [2]). If she also has difficulty on this type of task, recommend instruction in blending (synthesizing sounds) and segmenting (analyzing sounds).

If Incomplete Words is significantly lower than Sound Blending, consider the nature of the instructional program. Whereas reading instruction may help to develop the student's ability to blend sounds, it is less likely to develop the auditory closure ability measured by Incomplete Words.

Although Sound Awareness gives only a total score, analyze performance on the four subtests. Determine if the student's performance differs on rhyming tasks versus sound manipulation tasks to get a sense of the level at which the student's phonological abilities are breaking down.

Some individuals have trouble learning to rhyme but can learn to blend and segment sounds. If a student has difficulty with rhyming, as well as with the other tasks on Sound Awareness, check performance on the Sound Blending test to see if he may have developed some of the intermediate phonological awareness skills.

Phonological awareness abilities can be developed through carefully planned instruction. In interpreting assessment results, consider how the current or past method of instruction may have affected scores measuring this ability rather than assuming that the student developed these abilities through incidental learning.

Before deciding that a student has a weakness in orthographic processing (i.e., recall of spelling patterns), make sure that phonological awareness skills are developed. Phonological awareness provides the foundation on which orthographic coding skills can be built.

Students who speak English as a second language may misperceive some English phonemes and obtain low scores on measures of phonological awareness. These low scores may be more a reflection of their limited familiarity with English language phonemes, rather than poor phonological awareness.

The most critical phonemic awareness abilities for decoding and encoding are blending and segmentation. When writing recommendations, place greater emphasis on teaching these abilities than on teaching rhyming.

Compare performance on phonological awareness tests to performance on phoneme/grapheme knowledge tests (Word Attack, Spelling of Sounds). If phonological awareness is significantly higher than phoneme/grapheme knowledge, recommend instruction in letter/sound relationships (phonics). If performance is low on both, recommend activities to build phonological awareness, as well as procedures to build phoneme/grapheme knowledge.

If analysis of Sound Awareness indicates good rhyming ability but a weakness in manipulating phonemes within words, and Sound Blending is low, the student may benefit from a word family approach to reading instruction while learning the more complex phonological awareness skills that will enable her to make better use of phonics.

Before recommending phonological awareness training for older students with reading disabilities, make sure that their problems are not related to the orthographic features of words (recalling letter patterns) rather than to the phonological features. If the student sequences sounds correctly on the Spelling of Sounds and Spelling tests (even though the word may be misspelled), instruction in phonological awareness is probably unnecessary. The following performance patterns may indicate that instruction should instead be directed to mastery of common English spelling patterns:

- spellings on Spelling of Sounds, Spelling, and Writing Samples that are phonically accurate (correct sound/symbol correspondence) but violate spelling rules and include letter combinations that are unlikely in written English (*kw* instead of *qu*);
- attempts to sound out words phonetically that would normally be recognized as sight words (e.g., was);
- scores on Sound Blending and Sound Awareness are average or better but Letter-Word Identification, Word Attack, Reading Fluency and Spelling are weak. Word Attack may be higher if the student has acquired phoneme/grapheme correspondences.

Basic Reading and Writing Skills

Record errors on both the Letter-Word Identification and Word Attack tests for later error analysis. Attempt to discern patterns of performance, such as if the student is able to identify initial and final sounds, but struggles with medial vowel sounds.

If Letter-Word Identification is higher than Word Attack, the student may be depending on sight word recognition rather than phonics skills. Determine whether or not the student has a weakness in phonological processing that may be contributing to poor phonics skills.

Compare Reading Fluency to Letter-Word Identification and Word Attack. If all are low, consider that poor basic reading skills are preventing the development of fluency.

If the student demonstrates weaknesses on basic reading skills, check her performance on the tests of phonological awareness to determine if weak phonological awareness is contributing to weak basic reading skills. If the results are inconclusive, consider administering a standardized test of phonological awareness skills that also includes tests of rapid automatized naming.

Compare performance on Spelling and Spelling of Sounds. Check to see whether or not the student has mastered spellings of high frequency words.

Compare performance on Spelling of Sounds to Word Attack. Check to see that the student can use grapheme/phoneme correspondences for both spelling and pronouncing nonwords.

Review errors on the Editing and the Punctuation and Capitalization tests. Make a list of the rules that the student knows and does not know.

On Editing, make a note of whether or not the student is able to detect the error, even if he cannot correct it.

Reading Comprehension

Review the errors items on the Reading Fluency test. By analyzing other tests, determine whether errors indicate weak word reading skills or poor literal reading comprehension.

Consider performance on Letter-Word Identification and Word Attack to determine whether or not poor decoding skill is affecting reading comprehension. If decoding skill is adequate but reading comprehension scores are low, check to see if limited knowledge and weak oral language abilities are contributing factors.

Notice if the student attempts to maintain meaning on items on the Passage Comprehension test.

Analyze errors on Passage Comprehension to see if the student's answers are syntactically correct. If many error items are not syntactically correct, consider the possibility of a problem in comprehension of oral syntax.

Record any oral reading errors on the Reading Vocabulary test. Attempt to determine if a low score is more a reflection of weak word identification skills or limited vocabulary.

Consider performance on Academic Knowledge, General Information, and the oral vocabulary tests. Limited background knowledge or vocabulary may be the reason for poor reading comprehension.

Compare performance on Passage Comprehension to Oral Comprehension and Reading Vocabulary to Verbal Comprehension to see if a difference exists between comprehen-

sion of written versus oral text. In general, high correlations exist between these measures unless the student is having trouble with basic reading skills. In secondary and postsecondary students, reading comprehension may be higher than listening comprehension because in written text, language is visible and the memory demands decrease.

Compare results on the Reading Fluency and Passage Comprehension tests to tasks that involve processing of higher-level discourse.

Written Expression

Compare performance on Writing Samples to measures and observations of oral language abilities. Attempt to determine if the quality of written expression is similar to oral expression. Compare performance on Writing Samples and Writing Fluency to determine if a difference exists between writing speed and ideation.

Compare the syntactic complexity of the sentences produced on Writing Samples and Writing Fluency. Determine if the student is able to write both short, simple sentences, as well as longer, more complex, sentences with more content.

Analyze spelling on Writing Samples and compare to performance on Spelling and Spelling of Sounds. See if spelling performance deteriorates when the student has to focus on and integrate many aspects of writing.

Analyze the student's use of punctuation and capitalization on Writing Samples. Compare to Editing to see if the student knows the rules and can correct errors when she does not have to write but cannot formulate a sentence, retrieve spellings, execute the mechanical act of writing, and attend simultaneously to punctuation, capitalization, and usage.

Compare performance on Writing Fluency to performance on Reading Fluency and Math Fluency to determine if the student has a similar rate on all timed measures.

Handwriting

Use the Handwriting Elements Checklist to evaluate and record the specific factors affecting legibility: slant, spacing, size, horizontal alignment, letter formation, and line quality. List the elements that need improvement.

Compare the student's performance on Writing Fluency, a timed test, to performance on Writing Samples and Spelling. Writing Fluency is most indicative of a student's fastest handwriting, whereas Writing Samples and Spelling represent handwriting under typical writing conditions. If the student writes legibly on the Writing Samples and Spelling tests, conclude that handwriting is adequate under typical conditions.

For older students (middle school and up), writing rate has more of an effect on writing skill than does poor quality of handwriting. If a student has a compromised writing rate, specific accommodations are often necessary.

Check to see whether or not a student struggling with handwriting has developed keyboarding skill. If not, recommend instruction in word processing.

If the student evidences significantly poor quality of manuscript (print) handwriting, observe her as she writes. Note if the strokes she uses to make her letters are made in the correct sequence and if the direction of the strokes is correct (generally left to right, top to bottom). Multiple errors of this type impede the development of writing fluency and automaticity.

Note the student's pencil grip as she writes. An awkward or particularly odd grip could indicate weakness in the fine muscles of the hand.

Note the student's posture as she writes. An extreme tilt of the head to one side or the other may indicate inefficient visual functioning such as the suppression of one eye. After the test, ask the student about her ability to see the paper and the reason for turning her head.

Note how the student uses her non-writing hand (e.g., steadies her paper, supports her chin).

Mathematics

General

If the student has particular difficulty with visual–motor coordination and spatial organization of numbers on the page, as she works through a computation problem, the increasing visual confusion may lead to errors. When testing is completed, distinguish between math difficulty and visual confusion resulting from poorly lined up and sloppy numbers. Ask the student to dictate the solution to a problem similar to one that she got wrong while you write for her.

If the student is slow on tests of Processing Speed (especially Visual Matching) and Math Fluency, and makes many errors on Calculation, and Applied Problems, consider that slow processing may have impeded the development of automaticity of math facts and procedures, thus leaving little cognitive attention available for more complex application of those skills.

If the student has difficulty with all math tests as well as Numbers Reversed and Visual Matching, analyze Auditory Working Memory to see if she had difficulty with only the numbers but not the "things." If so, consider that she may have specific difficulty visualizing and working with number symbols.

Math Fluency

Analyze the student's errors on Math Fluency. Many incorrect responses may indicate a weakness in understanding the operations, inattention to the operation signs, and/or poor fact knowledge; correct but few answers may indicate lack of automaticity.

Compare performance on Math Fluency to Calculation to see if low performance in basic skills is a result of delayed automaticity with math facts and/or limited procedural knowledge.

Compare results on Math Fluency to tests of Reading and Writing Fluency to determine whether or not performances on all timed academic tests are similar.

Calculation

Errors are often rule-governed. The student misunderstands the rule, misapplies the rule, or has made up a rule for herself. Analyze errors on Calculation and on Applied Problems to attempt to determine why she made errors on specific items. If needed, ask her to solve a similar problem and explain her procedure as she does so.

> Example case: The student attempts to solve 7×13 (in a vertical format) and comes up with an answer of 22. Verbalizing her procedure, she said, "7 times 3 is 21." She then points to the 1 in the 13 and says, "Add the one and that's 22." Her process indicates that she did not understand the problem as 7 groups of 13.
>
> Consider that the student may obtain an average or better score on Calculation without having the grade-expected skills. If the student has used a variety of inefficient processes (e.g., counting on fingers, repeated addition instead of multiplication) to compensate for lack of procedural (e.g., use of algorithms) or conceptual (e.g., place value) knowledge and math information (e.g., units of measurement equivalencies), report the difference between her score and her proficiency as well as her areas of difficulty.

Applied Problems

Attempt to determine reasons for a low score on Applied Problems (e.g., poor basic skills, difficulty sequencing multiple steps, word problem structure, language processing difficulties, or poor mathematical reasoning).

Analyze the student's errors on Applied Problems to see if she understands the logical structure of a problem but does not know how to use the appropriate procedure.

> Example case: The student is given the problem: "12 people each have 25 cents to spend. How much money do they have altogether?" She writes a column of twelve 25s with an addition sign and then tries to add them. She understands the logic of the problem and can reason out how to solve it but either does not know that multiplication is the more efficient operation to use or does not know the procedure.

If the student has difficulty with Applied Problems but Calculation appears adequate, check her performance on Concept Formation to see whether or not she has difficulty working with multiple elements of a problem simultaneously and abstracting the superordinate features.

Quantitative Concepts

Analyze the errors on Quantitative Concepts to see if the student does not understand math terminology and concepts or if she is not able to discern the relationships among numbers.

If the student is having difficulty with discerning number patterns, see if the level at which she breaks down gives you any information about her flexibility with number relationships.

> Example case: The student can respond correctly as long as the increment between numbers is static (e.g., 6–9–12 . . .) but has difficulty when the increment changes within a pattern (e.g., 6–9–13–18 . . .).

Specific Math Disorders

Consider that the student who has good language, fluid reasoning, and working memory, ascertains the logical structure of word problems, differentiates relevant from extraneous information, and selects the appropriate operations, but becomes confused while working through the computation, may have a procedural math disorder. A procedural disorder is characterized by ". . . relatively frequent use of developmentally immature procedures, frequent errors in the execution of procedures, potential developmental delay in the understanding of the concepts underlying procedural use, and difficulties sequencing the multiple steps in complex procedures" (Geary, 2000, p. 6).

If the student has limited ability to retrieve math facts, the math facts she does retrieve are frequently wrong, her error responses are associated with the numbers in the problem, and the solution times for correct retrieval are not systematic, consider the possibility of a mathematical disorder in semantic memory. This disorder appears to occur with phonologically-based reading disorders (Geary, 2000).

If the student has difficulty with spatial representation of numerical information (e.g., misalignment of numbers, number reversals), misinterpretation of numerical information related to position (e.g., place value errors), and, possibly, has difficulties in other areas of math that depend on spatial abilities (e.g., geometry), consider a visuospatial mathematical disorder (Geary, 2000).