

WISC-R
Kindergarten/Year 1
Fast Track Project Technical Report
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SAS Scoring Program

Citations

Instrument

Sattler, J.M. (1992). *Assessment of children: Revised and updated third edition*. San Diego: Jerome M. Sattler.

Wechsler, D. (1974). *Manual for the Wechsler Intelligence Scale for Children-Revised*. San Antonio, TX: The Psychological Corporation, Harcourt Brace Jovanovich, Inc.

Reports

Rains, C. (2003). *WISC-R (Fast Track Project Technical Report)*. Available from the Fast Track Project website: <http://www.fasttrackproject.org>

Jones, D. (1999). *WISC-R (Fast Track Project Technical Report)*. Durham, NC: Duke University.

Data Sources

Raw: C1A_WISC, P1B

Scored: WSR1

I. Scale Description

Portions of the Wechsler Intelligence Scale for Children-Revised (WISC-R) were used in years 1 and 2 for all three cohorts to assess child intelligence in early elementary school. The WISC-R was developed by David Wechsler (1974) as a second version of the intelligence scale originally introduced in 1949. For the Fast Track Project, a "short form" of the WISC-R was used which included two of the ten subtests: Block Design (from the Performance module of the WISC) and Vocabulary (from the Verbal Ability module). The short form score was then converted into an Estimated IQ Score using methods provided by Sattler (1992).

II. Report Sample

These exploratory analyses were conducted on the first cohort on the high-risk sample (n = 310) and the normative sample (n = 387, N = 618 with overlap) from the first year of the study. No records were missing the entire measure.

III. Scaling

Scoring tables from the WISC-R manual were used to create separate age-adjusted scores for the two subtests for year 1. Since test administration dates were not recorded when the WISC was given, date of administration from the Family Information Form (FIF) was used as an approximate interview date of the WISC as these two instruments were typically administered on the same day in year 1. Child age was calculated by subtracting date of birth from the FIF date of administration. Raw sum scores for the Vocabulary test (WSR1SVO) and the Block Design test (WSR1SBD) were converted into scaled scores, which were coded WSR1ZVO (for Vocabulary) and WSR1ZBD (for Block Design), and were adjusted for the child's age at the time of test administration. The scaling process was based on a norming population with a mean score of 10 and standard deviation of 3 on each subtest.

Estimated IQ Scores were created by combining the scaled Block Design and Vocabulary scores within year and then using tables provided by Sattler (1992, p.851) to convert to an IQ score (WSR1IQ), normed on a score with a mean of 100 and a standard deviation of 15.

IV. Differences between Groups

There were significant differences noted between the normative and high-risk sample for the all of the scores such that the normative sample scored higher than the high-risk sample on all of the subtests.

WISC-R—Subtests, Normative vs. High-Risk
The TTEST Procedure

Variable	Normative Sample		High-Risk Sample		DF	t Value	Pr > t
	Mean	Std Dev	Mean	Std Dev			
Block Design Raw Score (WSR1SBD)	8.06	6.39	5.69	5.10	616	-5.10	<.0001
Vocabulary Raw Score (WSR1SVO)	13.73	5.23	12.52	4.51	615	-3.09	0.0021
Block Design Age-Adjusted Score (WSR1ZBD)	9.23	2.99	7.63	3.15	611	-6.48	<.0001
Vocabulary Age-Adjusted Score (WSR1ZVO)	9.41	3.55	8.38	3.00	610	-3.89	0.0001
Estimated IQ Score (WSR1IQ)	95.10	18.39	85.90	16.65	610	-6.48	<.0001

WISC-R—Subtests, Control vs. Intervention
The TTEST Procedure

Variable	Control Sample		Intervention Sample		DF	t Value	Pr > t
	Mean	Std Dev	Mean	Std Dev			
Block Design Raw Score (WSR1SBD)	5.28	4.94	6.10	5.24	308	-1.43	0.1545
Vocabulary Raw Score (WSR1SVO)	12.27	4.58	12.77	4.44	307	-0.96	0.3354
Block Design Age-Adjusted Score (WSR1ZBD)	7.44	3.17	7.82	3.12	303	-1.06	0.2908
Vocabulary Age-Adjusted Score (WSR1ZVO)	8.23	3.09	8.52	2.90	302	-0.85	0.3980
Estimated IQ Score (WSR1IQ)	84.81	16.76	87.03	16.52	302	-1.17	0.2444

V. Recommendations for Use

The *Block Design Raw Score* was positively skewed in the normative sample and the high-risk sample. The *Vocabulary Raw Score*, the *Block Design Age-Adjusted Score*, the *Vocabulary Age-Adjusted Score*, and the *Year 1 Estimated IQ Score* were all normally distributed for both the normative and the high-risk samples.

A limitation for using WSR1IQ is the absence of norms for children under age 6 (Sattler, 1992).¹ Since age-norming tables for the WISC-R have a lower limit of age 6 years, 0 months (age 6-0), scores for children under age 6 in the Fast Track Project were scaled based on the youngest age bracket available (age 6-0 to age 6-3). A substantial proportion of the year one cohort one sample -- 22% of the normative sample and 22% of the high-risk sample -- were under the age of 6.0 years, and thus have potentially inappropriately scaled scores. The result of this in terms of distributions is a mild floor effect and heavier tail for the year one IQ scores.

Depending on the question being addressed, analysts may use the estimated IQ scores or the separate subtest, age-adjusted scores.

¹ Sattler (1992, p.142) also notes that norms for children between age 6-0 years and age 6-3 years were created by extrapolation instead of actually testing children in that age group; thus, norms for this age may be unreliable as well.

VI. Item and Scale Means and SDs
WISC-R Normative Sample Items

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C1ABD1	BD Design #1: 45"	387	1.553	0.730	0.000	2.000
C1ABD2	BD Design #2: 45"	387	1.481	0.763	0.000	2.000
C1ABD3	BD Design #3: 45"	386	1.163	0.878	0.000	2.000
C1ABD4	BD Design #4: 45"	387	1.315	2.117	0.000	7.000
C1ABD5	BD Design #5: 75"	387	0.966	1.862	0.000	7.000
C1ABD6	BD Design #6: 75"	387	0.532	1.389	0.000	5.000
C1ABD7	BD Design #7: 75"	387	0.171	0.825	0.000	5.000
C1ABD8	BD Design #8: 75"	387	0.194	0.885	0.000	6.000
C1ABD9	BD Design #9: 120"	387	0.065	0.518	0.000	5.000
C1ABD10	BD Design #10: 120"	387	0.000	0.000	0.000	0.000
C1ABD11	BD Design #11: 120"	387	0.000	0.000	0.000	0.000
C1AVO1	Knife	387	1.643	0.665	0.000	2.000
C1AVO2	Umbrella	387	1.602	0.665	0.000	2.000
C1AVO3	Clock	387	1.522	0.676	0.000	2.000
C1AVO4	Hat	387	1.581	0.644	0.000	2.000
C1AVO5	Bicycle	387	1.305	0.571	0.000	2.000
C1AVO6	Nail	387	1.204	0.780	0.000	2.000
C1AVO7	Alphabet	387	1.034	0.672	0.000	2.000
C1AVO8	Donkey	387	0.718	0.766	0.000	2.000
C1AVO9	Thief	387	0.848	0.968	0.000	2.000
C1AVO10	Join	387	0.509	0.653	0.000	2.000
C1AVO11	Brave	387	0.522	0.809	0.000	2.000
C1AVO12	Diamond	387	0.571	0.703	0.000	2.000
C1AVO13	Gamble	387	0.106	0.376	0.000	2.000
C1AVO14	Nonsense	387	0.155	0.506	0.000	2.000
C1AVO15	Prevent	387	0.021	0.189	0.000	2.000
C1AVO16	Contagious	387	0.093	0.403	0.000	2.000
C1AVO17	Nuisance	387	0.016	0.160	0.000	2.000
C1AVO18	Fable	387	0.000	0.000	0.000	0.000
C1AVO19	Hazardous	387	0.003	0.051	0.000	1.000
C1AVO20	Migrate	387	0.005	0.102	0.000	2.000
C1AVO21	Stanza	387	0.000	0.000	0.000	0.000
C1AVO22	Seclude	386	0.000	0.000	0.000	0.000
C1AVO23	Mantis	387	0.005	0.102	0.000	2.000
C1AVO24	Espionage	387	0.000	0.000	0.000	0.000
C1AVO25	Belfry	387	0.000	0.000	0.000	0.000
C1AVO26	Rivalry	387	0.000	0.000	0.000	0.000
C1AVO27	Amendment	387	0.000	0.000	0.000	0.000
C1AVO28	Compel	387	0.000	0.000	0.000	0.000
C1AVO29	Affliction	387	0.000	0.000	0.000	0.000
C1AVO30	Obliterate	386	0.000	0.000	0.000	0.000
C1AVO31	Imminent	383	0.000	0.000	0.000	0.000
C1AVO32	Dilatory	385	0.000	0.000	0.000	0.000

WISC-R Control Sample Items

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C1ABD1	BD Design #1: 45"	155	1.452	0.791	0.000	2.000
C1ABD2	BD Design #2: 45"	155	1.239	0.876	0.000	2.000
C1ABD3	BD Design #3: 45"	155	0.845	0.898	0.000	2.000
C1ABD4	BD Design #4: 45"	155	0.871	1.786	0.000	6.000
C1ABD5	BD Design #5: 75"	155	0.555	1.517	0.000	6.000
C1ABD6	BD Design #6: 75"	155	0.213	0.919	0.000	5.000
C1ABD7	BD Design #7: 75"	155	0.000	0.000	0.000	0.000
C1ABD8	BD Design #8: 75"	155	0.077	0.553	0.000	4.000
C1ABD9	BD Design #9: 120"	155	0.026	0.321	0.000	4.000
C1ABD10	BD Design #10: 120"	155	0.000	0.000	0.000	0.000
C1ABD11	BD Design #11: 120"	155	0.000	0.000	0.000	0.000
C1AVO1	Knife	155	1.561	0.730	0.000	2.000
C1AVO2	Umbrella	155	1.465	0.723	0.000	2.000
C1AVO3	Clock	155	1.548	0.647	0.000	2.000
C1AVO4	Hat	155	1.477	0.696	0.000	2.000
C1AVO5	Bicycle	155	1.277	0.564	0.000	2.000
C1AVO6	Nail	155	1.097	0.779	0.000	2.000
C1AVO7	Alphabet	155	1.006	0.660	0.000	2.000
C1AVO8	Donkey	155	0.594	0.681	0.000	2.000
C1AVO9	Thief	155	0.735	0.940	0.000	2.000
C1AVO10	Join	155	0.471	0.638	0.000	2.000
C1AVO11	Brave	155	0.381	0.723	0.000	2.000
C1AVO12	Diamond	155	0.445	0.636	0.000	2.000
C1AVO13	Gamble	155	0.090	0.330	0.000	2.000
C1AVO14	Nonsense	155	0.103	0.381	0.000	2.000
C1AVO15	Prevent	155	0.000	0.000	0.000	0.000
C1AVO16	Contagious	155	0.013	0.113	0.000	1.000
C1AVO17	Nuisance	155	0.006	0.080	0.000	1.000
C1AVO18	Fable	155	0.000	0.000	0.000	0.000
C1AVO19	Hazardous	155	0.000	0.000	0.000	0.000
C1AVO20	Migrate	155	0.000	0.000	0.000	0.000
C1AVO21	Stanza	155	0.000	0.000	0.000	0.000
C1AVO22	Seclude	155	0.000	0.000	0.000	0.000
C1AVO23	Mantis	155	0.000	0.000	0.000	0.000
C1AVO24	Espionage	155	0.000	0.000	0.000	0.000
C1AVO25	Belfry	155	0.000	0.000	0.000	0.000
C1AVO26	Rivalry	155	0.000	0.000	0.000	0.000
C1AVO27	Amendment	155	0.000	0.000	0.000	0.000
C1AVO28	Compel	155	0.000	0.000	0.000	0.000
C1AVO29	Affliction	155	0.000	0.000	0.000	0.000
C1AVO30	Obliterate	155	0.000	0.000	0.000	0.000
C1AVO31	Imminent	155	0.000	0.000	0.000	0.000
C1AVO32	Dilatory	155	0.000	0.000	0.000	0.000

WISC-R Intervention Sample Items

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
C1ABD1	BD Design #1: 45"	155	1.439	0.782	0.000	2.000
C1ABD2	BD Design #2: 45"	155	1.355	0.843	0.000	2.000
C1ABD3	BD Design #3: 45"	155	1.013	0.933	0.000	2.000
C1ABD4	BD Design #4: 45"	155	1.077	2.015	0.000	7.000
C1ABD5	BD Design #5: 75"	155	0.768	1.701	0.000	6.000
C1ABD6	BD Design #6: 75"	155	0.297	1.088	0.000	6.000
C1ABD7	BD Design #7: 75"	155	0.103	0.636	0.000	4.000
C1ABD8	BD Design #8: 75"	155	0.026	0.321	0.000	4.000
C1ABD9	BD Design #9: 120"	155	0.026	0.321	0.000	4.000
C1ABD10	BD Design #10: 120"	155	0.000	0.000	0.000	0.000
C1ABD11	BD Design #11: 120"	155	0.000	0.000	0.000	0.000
C1AVO1	Knife	154	1.656	0.661	0.000	2.000
C1AVO2	Umbrella	154	1.571	0.675	0.000	2.000
C1AVO3	Clock	154	1.468	0.697	0.000	2.000
C1AVO4	Hat	154	1.532	0.658	0.000	2.000
C1AVO5	Bicycle	154	1.182	0.542	0.000	2.000
C1AVO6	Nail	154	1.234	0.765	0.000	2.000
C1AVO7	Alphabet	154	0.955	0.609	0.000	2.000
C1AVO8	Donkey	154	0.669	0.759	0.000	2.000
C1AVO9	Thief	154	0.812	0.962	0.000	2.000
C1AVO10	Join	154	0.481	0.649	0.000	2.000
C1AVO11	Brave	154	0.474	0.777	0.000	2.000
C1AVO12	Diamond	154	0.435	0.615	0.000	2.000
C1AVO13	Gamble	153	0.144	0.420	0.000	2.000
C1AVO14	Nonsense	154	0.097	0.409	0.000	2.000
C1AVO15	Prevent	154	0.019	0.180	0.000	2.000
C1AVO16	Contagious	154	0.032	0.211	0.000	2.000
C1AVO17	Nuisance	154	0.000	0.000	0.000	0.000
C1AVO18	Fable	154	0.000	0.000	0.000	0.000
C1AVO19	Hazardous	154	0.006	0.081	0.000	1.000
C1AVO20	Migrate	154	0.000	0.000	0.000	0.000
C1AVO21	Stanza	154	0.000	0.000	0.000	0.000
C1AVO22	Seclude	154	0.000	0.000	0.000	0.000
C1AVO23	Mantis	154	0.000	0.000	0.000	0.000
C1AVO24	Espionage	154	0.000	0.000	0.000	0.000
C1AVO25	Belfry	154	0.000	0.000	0.000	0.000
C1AVO26	Rivalry	154	0.000	0.000	0.000	0.000
C1AVO27	Amendment	154	0.000	0.000	0.000	0.000
C1AVO28	Compel	154	0.000	0.000	0.000	0.000
C1AVO29	Affliction	154	0.000	0.000	0.000	0.000
C1AVO30	Obliterate	154	0.000	0.000	0.000	0.000
C1AVO31	Imminent	152	0.000	0.000	0.000	0.000
C1AVO32	Dilatory	154	0.000	0.000	0.000	0.000

WISC-R Normative Sample Scores

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
WSR1SBD	WISC Block Design Raw Score Y1	387	7.437	6.293	0.000	36.000
WSR1SVO	WISC Vocabulary Raw Score Y1	387	13.463	5.129	0.000	35.000
WSR1ZBD	WISC Block Design Age-Adjusted Score Y1	387	8.829	3.126	1.000	19.000
WSR1ZVO	WISC Vocabulary Age-Adjusted Score Y1	387	9.212	3.504	1.000	19.000
WSR1IQ	Year 1 Estimated IQ Score	387	93.016	18.527	51.000	147.000

WISC-R Control Sample Scores

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
WSR1SBD	WISC Block Design Raw Score Y1	155	5.277	4.942	0.000	29.000
WSR1SVO	WISC Vocabulary Raw Score Y1	155	12.271	4.582	0.000	24.000
WSR1ZBD	WISC Block Design Age-Adjusted Score Y1	155	7.439	3.169	1.000	16.000
WSR1ZVO	WISC Vocabulary Age-Adjusted Score Y1	155	8.232	3.089	1.000	18.000
WSR1IQ	Year 1 Estimated IQ Score	155	84.806	16.757	44.000	133.000

WISC-R Intervention Sample Scores

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
WSR1SBD	WISC Block Design Raw Score Y1	155	6.103	5.240	0.000	29.000
WSR1SVO	WISC Vocabulary Raw Score Y1	154	12.766	4.441	0.000	23.000
WSR1ZBD	WISC Block Design Age-Adjusted Score Y1	150	7.820	3.122	1.000	14.000
WSR1ZVO	WISC Vocabulary Age-Adjusted Score Y1	149	8.523	2.903	1.000	17.000
WSR1IQ	Year 1 Estimated IQ Score	149	87.034	16.524	40.000	138.000

VII. Scale Correlations

WISC-R Full Sample Scores

Pearson Correlation Coefficients Prob > r under H0: Rho=0 Number of Observations					
	WSR1SBD	WSR1SVO	WSR1ZBD	WSR1ZVO	WSR1IQ
WSR1SBD WISC Block Design Raw Score Y1	1.00000 618	0.28572 <.0001 617	0.88654 <.0001 613	0.24914 <.0001 612	0.70439 <.0001 612
WSR1SVO WISC Vocabulary Raw Score Y1	0.28572 <.0001 617	1.00000 617	0.22605 <.0001 612	0.92091 <.0001 612	0.72512 <.0001 612
WSR1ZBD WISC Block Design Age-Adjusted Score Y1	0.88654 <.0001 613	0.22605 <.0001 612	1.00000 613	0.29199 <.0001 612	0.79070 <.0001 612
WSR1ZVO WISC Vocabulary Age-Adjusted Score Y1	0.24914 <.0001 612	0.92091 <.0001 612	0.29199 <.0001 612	1.00000 612	0.81447 <.0001 612
WSR1IQ Year 1 Estimated IQ Score	0.70439 <.0001 612	0.72512 <.0001 612	0.79070 <.0001 612	0.81447 <.0001 612	1.00000 612