

Appendix 1. Illustrated below are look up tables converting raw NIH Toolbox Cognition Battery scores into normalized scaled scores ($M=10$, $SD=3$). The normalized scaled scores are for application in the age- and fully demographically-corrected formulas presented in Appendix 2. To use, select the scaled score table appropriate for the correction desired (age- or fully-corrected) and demographics (i.e., adult or child, and race/ethnicity for fully-corrected) of the given individual. The scaled score is then entered into the appropriate Appendix 2 formula in order to derive the desired corrected score.

“Raw Score” indicates:

Dimensional Card Change Sort – computed score
Picture Sequence Memory – computed score
Pattern Comparison – raw score
Picture Vocabulary – theta score

Flanker – computed score
List Sort – raw score
Oral Reading – theta score

Raw to Scaled Score (ss) for use in Age-corrected Formulas

Adults (18-85 years old)

ss								ss
	DCCS	Flanker	List Sort	Picture Sequence Memory	Pattern Comparison	Oral Reading	Picture Vocabulary	
0	0-1.55	0-1.92	0-2	200.00-217.60	0-16	-30- -12.19	-15- -10.25	0
1	1.56-2.07	1.93-4.18	3-4	217.61-257.35	17-24	-12.18- -4.75	-10.24- -4.78	1
2	2.08-2.18	4.19-4.45	5	257.36-293.24	25-27	-4.74- -3.69	-4.77- -2.94	2
3	2.19-2.43	4.46-5.11	6-7	293.25-303.79	28-29	-3.68- -1.97	-2.93- -0.84	3
4	2.44-3.78	5.12-6.24	8-9	303.80-333.22	30-33	-1.96- -1.05	-0.83-0.46	4
5	3.79-5.96	6.25-6.93	10-11	333.23-352.61	34-38	-1.04- -0.01	0.47-1.39	5
6	5.97-6.68	6.94-7.51	12	352.62-382.38	39-42	0.00-1.07	1.40-2.18	6
7	6.69-7.20	7.52-7.90	13-14	382.39-415.59	43-46	1.08-2.14	2.19-3.00	7
8	7.21-7.59	7.91-8.20	15	415.60-442.62	47-49	2.15-3.03	3.01-3.74	8
9	7.60-7.90	8.21-8.45	16	442.63-481.43	50-53	3.04-3.96	3.75-4.42	9
10	7.91-8.18	8.46-8.75	17	481.44-521.53	54-57	3.97-4.84	4.43-4.95	10
11	8.19-8.51	8.76-8.96	18	521.54-552.56	58-61	4.85-5.73	4.96-5.57	11
12	8.52-8.76	8.97-9.19	19	552.57-599.04	62-64	5.74-6.81	5.58-6.25	12
13	8.77-9.03	9.20-9.40	20	599.05-625.89	65-68	6.82-7.56	6.26-7.15	13
14	9.04-9.31	9.41-9.58	21	625.90-653.76	69-72	7.57-8.23	7.16-7.95	14
15	9.32-9.65	9.59-9.72	22	653.77-677.94	73-75	8.24-8.84	7.96-8.77	15
16	9.66-9.87	9.73-9.87	23-24	677.95-689.94	76-78	8.85-9.16	8.78-9.57	16
17	9.88-9.99	9.88-9.99	25	689.95-700.89	79-81	9.17-9.35	9.58-9.92	17
18	>9.99	>9.99	26	700.90-722.27	82-84	9.36-9.97	9.93-10.62	18
19	----	----	----	722.28-778.57	85-97	9.98-16.36	10.63-12.73	19
20	----	----	----	778.58-800.00	98-130	16.37-20.00	12.74-15.00	20

“Raw Score” indicates:

Dimensional Card Change Sort – computed score
 Picture Sequence Memory – computed score
 Pattern Comparison – raw score
 Picture Vocabulary – theta score

Flanker – computed score
 List Sort – raw score
 Oral Reading – theta score

Raw to Scaled Score (ss) for use in Age-corrected Formulas

Children (3-17 years old)

SS								SS
	DCCS	Flanker	List Sort	Picture Sequence Memory	Pattern Comparison	Reading	Vocabulary	
0	---	0-0.11	---	200-213.79	0-15	-30- -23.20	-15- -9.68	0
1	0-0.09	0.12-0.58	0	213.80-238.98	16-18	-23.19- -23.10	-9.67- -8.75	1
2	0.10-0.24	0.59-0.88	1	238.99-246.40	19	-23.09- -22.45	-8.74- -8.17	2
3	0.25-0.40	0.89-1.26	2-3	246.41-273.92	20-23	-22.44- -20.82	-8.16- -7.15	3
4	0.41-0.76	1.27-1.64	4-5	273.93-301.72	24-27	-20.81- -19.47	-7.14- -6.00	4
5	0.77-1.21	1.65-2.16	6-7	301.73-345.77	28-32	-19.46- -16.98	-5.99- -4.88	5
6	1.22-3.98	2.17-5.12	8-9	345.78-381.96	33-36	-16.97- -10.41	-4.87- -3.75	6
7	3.99-6.07	5.13-6.79	10-12	381.97-418.98	37-40	-10.40- -4.05	-3.74- -2.59	7
8	6.08-6.85	6.80-7.56	13-14	418.99-459.93	41-45	-4.04- -1.87	-2.58- -1.31	8
9	6.86-7.37	7.57-8.08	15	459.94-492.65	46-50	-1.86- -0.48	-1.30- -0.08	9
10	7.38-7.81	8.09-8.51	16	492.66-530.76	51-54	-0.47-0.63	-0.07- 1.01	10
11	7.82-8.19	8.52-8.88	17-18	530.77-567.13	55-58	0.64-1.72	1.02-1.97	11
12	8.20-8.53	8.89-9.15	19	567.14-594.75	59-62	1.73-2.64	1.98-2.87	12
13	8.54-8.85	9.16-9.37	20	594.76-618.73	63-66	2.65-3.53	2.88-3.67	13
14	8.86-9.22	9.38-9.55	21	618.74-647.45	67-70	3.54-4.56	3.68-4.65	14
15	9.23-9.56	9.56-9.73	22	647.46-676.47	71-73	4.57-5.68	4.66-5.30	15
16	9.57-9.79	9.74-9.86	23	676.48-682.94	74-76	5.69-6.77	5.31-5.90	16
17	9.80-9.88	9.87-9.99	24	682.95-697.90	77-80	6.78-8.02	5.91-6.29	17
18	9.89-9.99	>9.99	25	697.91-709.23	81-83	8.03-8.61	6.30-7.16	18
19	>9.99	---	26	709.24-751.96	84-86	8.62-9.16	7.17-8.14	19
20	---	---	---	751.97-794.69	87-112	9.17-15.31	8.15-14.36	20
21	---	---	---	794.70-800	113-130	15.32-20	14.37-15	21

“Raw Score” indicates:

Dimensional Card Change Sort – computed score
 Picture Sequence Memory – computed score
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 Picture Vocabulary – theta score

Flanker – computed score
 List Sort – raw score
 Oral Reading – theta score

Raw to Scaled Score (ss) for use in Fully-corrected Formulas

White/Asian Adults (18-85 years old)

ss								ss
	DCCS	Flanker	List Sort	Picture Sequence Memory	Pattern Comparison	Reading	Vocabulary	
0	0-0.54	0-0.68	0-1	200-203.32	0-5	-30- -24.08	-15- -14.66	0
1	0.55-2.06	0.69-4.06	2-3	203.33-244.53	6-25	-24.07- -5.18	-14.65- -4.72	1
2	2.07-2.20	4.07-4.36	4-5	244.54-289.78	26-27	-5.17- -3.43	-4.71- -3.20	2
3	2.21-2.91	4.37-4.95	6-7	289.79-300.46	28	-3.42- -1.06	-3.19- -1.15	3
4	2.92-3.81	4.96-6.17	8-9	300.47-331.71	29-32	-1.05- -0.13	-1.14-0.53	4
5	3.82-5.82	6.18-6.75	10-11	331.72-352.26	33-38	-0.12-0.70	0.54-1.87	5
6	5.83-6.60	6.76-7.42	12-13	352.27-382.36	39-42	0.71-1.58	1.88-2.77	6
7	6.61-7.10	7.43-7.83	14	382.37-417.12	43-46	1.59-2.58	2.78-3.61	7
8	7.11-7.53	7.84-8.16	15	417.13-442.95	47-49	2.59-3.39	3.62-4.16	8
9	7.54-7.88	8.17-8.45	16	442.96-480.65	50-53	3.40-4.27	4.17-4.73	9
10	7.89-8.15	8.46-8.73	17	480.66-522.65	54-56	4.28-5.12	4.74-5.26	10
11	8.16-8.50	8.74-8.95	18	522.66-550.57	57-60	5.13-6.03	5.27-5.90	11
12	8.51-8.77	8.96-9.18	19	550.58-596.90	61-65	6.04-6.91	5.91-6.60	12
13	8.78-9.03	9.19-9.40	20	596.91-624.29	66-68	6.92-7.71	6.61-7.37	13
14	9.04-9.30	9.41-9.58	21	624.30-653.19	69-72	7.72-8.38	7.38-8.09	14
15	9.31-9.69	9.59-9.73	22	653.20-677.92	73-75	8.39-8.94	8.10-8.88	15
16	9.70-9.87	9.74-9.87	23-24	677.93-690.73	76-78	8.95-9.21	8.89-9.62	16
17	9.88-9.99	9.88-9.99	25	690.74-700.91	79-81	9.22-9.63	9.63-10.37	17
18	>9.99	>9.99	26	700.92-722.91	82-87	9.64-11.04	10.38-10.75	18
19	---	---	---	722.92-794.52	88-124	11.05-18.78	10.76-14.85	19
20				794.53-800	125-130	18.79-20	14.86-15	20

“Raw Score” indicates:

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 Picture Vocabulary – theta score

Flanker – computed score
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 Oral Reading – theta score

Raw to Scaled Score (ss) for use in Fully-corrected Formulas

African American Adults (18-85 years old)

SS							SS	
	DCCS	Flanker	List Sort	Picture Sequence Memory	Pattern Comparison	Reading	Vocabulary	
0	---	---	---	---	---	---	---	0
1	---	---	---	---	---	---	---	1
2	0-2.14	0-4.59	0-6	200-311.14	0-24	-30- -10.91	-15- -2.24	2
3	2.15-2.51	4.60-5.47	7-8	311.15-324.52	25-30	-10.90- -3.66	-2.23- -0.45	3
4	2.52-5.10	5.48-6.01	9-10	324.53-333.35	31-33	-3.65- -1.97	-0.44-0.36	4
5	5.11-6.60	6.02-6.73	11	333.36-359.23	34-37	-1.96- -1.32	0.37-0.74	5
6	6.61-7.07	6.74-7.36	12-13	359.24-376.23	38-40	-1.31- -0.57	0.75-1.39	6
7	7.08-7.36	7.37-7.85	---	376.24-400.45	41-43	-0.56-0.83	1.40-2.06	7
8	7.37-7.63	7.86-8.07	14	400.46-428.47	44-47	0.84-1.87	2.07-2.77	8
9	7.64-7.91	8.08-8.31	15	428.48-469.41	48-52	1.88-2.74	2.78-3.54	9
10	7.92-8.17	8.32-8.53	16	469.42-500.82	53-55	2.75-3.52	3.55-3.89	10
11	8.18-8.39	8.54-8.77	17-18	500.83-528.54	56-58	3.53-4.17	3.90-4.40	11
12	8.40-8.56	8.78-8.98	19	528.55-585.59	59-61	4.18-5.04	4.41-5.08	12
13	8.57-8.80	8.99-9.30	---	585.60-614.46	62-65	5.05-5.84	5.09-5.33	13
14	8.81-9.24	9.31-9.44	20	614.47-639.02	66-69	5.85-7.39	5.34-5.94	14
15	9.25-9.52	9.45-9.65	21-22	639.03-667.76	70-73	7.40-8.36	5.95-7.67	15
16	9.53-9.73	9.66-9.77	23	667.77-689.98	74-76	8.37-8.78	7.68-9.16	16
17	9.74-9.85	9.78-9.98	24	689.99-705.78	77-83	8.79-8.97	9.17-9.43	17
18	9.86-10	>9.98	25-26	705.79-800	84-130	8.98-20	9.44-15	18

“Raw Score” indicates:

Dimensional Card Change Sort – computed score
 Picture Sequence Memory – computed score
 Pattern Comparison – raw score
 Picture Vocabulary – theta score

Flanker – computed score
 List Sort – raw score
 Oral Reading – theta score

Raw to Scaled Score (ss) for use in Fully-corrected Formulas

Hispanic Adults (18-85 years old)

ss								ss
	DCCS	Flanker	List Sort	Picture Sequence Memory	Pattern Comparison	Reading	Vocabulary	
0	---	---	---	---	---	---	---	0
1	---	---	---	---	---	---	---	1
2	0-0.87	0-3.44	0-4	200-235.69	0-16	-30- -12.15	-15- -8.50	2
3	0.88-2.15	3.45-5.69	5-7	235.70-310.53	17-32	-12.14- -2.01	-8.49- -1.76	3
4	2.16-2.28	5.70-6.75	8-9	310.54-339.79	33-39	-2.00- -1.15	-1.75-0.07	4
5	2.29-4.73	6.76-7.64	10	339.80-355.26	40-44	-1.14-0.26	0.08-1.29	5
6	4.74-6.70	7.65-8.04	11-12	355.27-403.52	45-47	0.27-0.86	1.30-1.93	6
7	6.71-7.43	8.05-8.24	13-14	403.53-428.28	48-49	0.87-2.21	1.94-2.60	7
8	7.44-7.74	8.25-8.33	15	428.29-474.55	50-52	2.22-2.82	2.61-3.27	8
9	7.75-8.05	8.34-8.74	16	474.56-520.25	53-57	2.83-3.88	3.28-3.68	9
10	8.06-8.32	8.75-8.98	17	520.26-571.80	58-60	3.89-5.08	3.69-4.56	10
11	8.33-8.67	8.99-9.16	18	571.81-594.02	61-63	5.09-6.22	4.57-5.63	11
12	8.68-8.86	9.17-9.37	19	594.03-626.25	64-65	6.23-7.02	5.64-6.24	12
13	8.87-9.27	9.38-9.48	20	626.26-651.07	66-69	7.03-7.57	6.25-7.33	13
14	9.28-9.46	9.49-9.64	21-22	651.08-677.55	70-72	7.58-8.00	7.34-7.91	14
15	9.47-9.66	9.65-9.76	23	677.56-683.45	73-74	8.01-8.86	7.92-8.64	15
16	9.67-9.89	9.77-9.99	24	683.46-698.33	75-80	8.87-9.03	8.65-9.23	16
17	>9.89	>9.99	25	698.34-749.31	81-102	9.04-12.91	9.24-12.38	17
18	---	---	26	749.32-800	103-130	12.92-20	12.39-15	18

“Raw Score” indicates:

Dimensional Card Change Sort – computed score
 Picture Sequence Memory – computed score
 Pattern Comparison – raw score
 Picture Vocabulary – theta score

Flanker – computed score
 List Sort – raw score
 Oral Reading – theta score

Raw to Scaled Score (ss) for use in Fully-corrected Formulas

White/Asian Children (3-17 years old)

SS								SS
	DCCS	Flanker	List Sort	Picture Sequence Memory	Pattern Comparison	Reading	Vocabulary	
0	0-0.02	0-0.23	---	200-220.69	0-15	-30- -23.94	-15- -8.39	0
1	0.03-0.10	0.24-0.62	0	220.70-238.89	16-18	-23.93- -23.04	-8.38- -8.23	1
2	0.11-0.25	0.63-0.93	1	238.90-244.73	19-20	-23.03- -21.72	-8.22- -7.77	2
3	0.26-0.45	0.94-1.30	2-3	244.74-272.49	21-23	-21.71- -20.13	-7.76- -6.72	3
4	0.46-0.82	1.31-1.70	4-5	272.50-301.72	24-28	-20.12- -18.83	-6.71- -5.61	4
5	0.83-2.12	1.71-2.24	6-7	301.73-345.66	29-32	-18.82- -16.53	-5.60- -4.60	5
6	2.13-4.68	2.25-5.54	8-10	345.67-385.43	33-36	-16.52- -9.64	-4.59- -3.30	6
7	4.69-6.24	5.55-7.01	11-12	385.44-434.58	37-41	-9.63- -3.51	-3.29- -2.04	7
8	6.25-6.98	7.02-7.69	13-14	434.59-471.92	42-46	-3.50- -1.30	-2.03- -0.74	8
9	6.99-7.50	7.70-8.18	15-16	471.93-504.89	47-51	-1.29- -0.10	-0.73-0.51	9
10	7.51-7.92	8.19-8.59	17	504.90-543.81	52-55	-0.09- 1.03	0.52-1.53	10
11	7.93-8.28	8.60-8.92	18	543.82-575.26	56-59	1.04-2.08	1.54-2.54	11
12	8.29-8.63	8.93-9.17	19	575.27-603.67	60-63	2.09-3.00	2.55-3.29	12
13	8.64-8.97	9.18-9.40	20	603.68-627.12	64-67	3.01-3.83	3.30-4.20	13
14	8.98-9.34	9.41-9.57	21	627.13-650.15	68-70	3.84-4.94	4.21-4.93	14
15	9.35-9.62	9.58-9.75	22	650.16-677.27	71-74	4.95-6.03	4.94-5.56	15
16	9.63-9.86	9.76-9.87	23-24	677.28-686.47	75-77	6.04-6.96	5.57-6.01	16
17	9.87-9.90	9.88-9.99	25	686.48-700.02	78-81	6.97-8.14	6.02-6.50	17
18	9.91-10	>9.99	26	700.03-719.18	82-84	8.15-8.63	6.51-7.79	18
19	---	---	---	719.19-766.05	85-89	8.64-9.23	7.80-8.21	19
20	---	---	---	766.06-800	90-130	9.24-20	8.22-15	20

“Raw Score” indicates:

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Flanker – computed score
 List Sort – raw score
 Oral Reading – theta score

Raw to Scaled Score (ss) for use in Fully-corrected Formulas

African American Children (3-17 years old)

SS								SS
	DCCS	Flanker	List Sort	Picture Sequence Memory	Pattern Comparison	Reading	Vocabulary	
1	0-0.02	0-0.54	---	200-212.74	0-19	-30- -25.67	-15- -9.52	1
2	0.03-0.19	0.55-0.76	0	212.75-246.48	20	-25.66- -22.22	-9.51- -8.06	2
3	0.20-0.33	0.77-1.21	1-3	246.49-274.80	21-23	-22.21- -21.22	-8.05- -6.99	3
4	0.34-0.58	1.22-1.67	4	274.81-298.08	24-28	-21.21- -18.90	-6.98- -5.84	4
5	0.59-0.92	1.68-2.62	5-6	298.09-345.46	29-32	-18.89- -16.02	-5.83- -4.91	5
6	0.93-3.67	2.63-5.02	7-9	345.47-369.98	33-35	-16.01- -9.31	-4.90- -4.26	6
7	3.68-5.57	5.03-6.40	10-11	369.99-411.03	36-39	-9.30- -4.29	-4.25- -2.93	7
8	5.58-6.54	6.41-7.20	12	411.04-436.76	40-44	-4.28- -2.50	-2.92- -1.80	8
9	6.55-7.21	7.21-7.86	13-14	436.77-472.53	45-48	-2.49- -1.20	-1.79- -0.74	9
10	7.22-7.61	7.87-8.36	15	472.54-501.08	49-52	-1.19- -0.23	-0.73-0.03	10
11	7.62-8.01	8.37-8.74	16	501.09-537.51	53-56	-0.22-0.91	0.04-0.90	11
12	8.02-8.33	8.75-9.09	17	537.52-570.06	57-60	0.92-1.83	0.91-1.80	12
13	8.34-8.69	9.10-9.31	18-19	570.07-594.17	61-64	1.84-2.55	1.81-2.67	13
14	8.70-9.02	9.32-9.42	20	594.18-618.94	65-67	2.56-3.55	2.68-3.39	14
15	9.03-9.40	9.43-9.59	21	618.95-641.91	68-70	3.56-4.60	3.40-4.31	15
16	9.41-9.79	9.60-9.83	22	641.92-679.77	71-74	4.61-6.18	4.32-5.10	16
17	9.80-9.89	9.84-9.93	23	679.78-692.02	75-78	6.19-7.61	5.11-6.10	17
18	9.89-10	9.94-9.99	24-25	692.03-748.41	79-84	7.62-8.89	6.11-7.16	18
19	---	>9.99	26	748.42-800	85-130	8.90-20	7.17-15	19

“Raw Score” indicates:

Dimensional Card Change Sort – computed score
 Picture Sequence Memory – computed score
 Pattern Comparison – raw score
 Picture Vocabulary – theta score

Flanker – computed score
 List Sort – raw score
 Oral Reading – theta score

Raw to Scaled Score (ss) for use in Fully-corrected Formulas

Hispanic Children (3-17 years old)

SS								SS
	DCCS	Flanker	List Sort	Picture Sequence Memory	Pattern Comparison	Reading	Vocabulary	
1	0-0.03	0-0.03	---	200-246.43	0-13	-30- -24.62	-15- -9.91	1
2	0.04-0.25	0.04-0.77	0	246.44-265.64	14-18	-24.61- -23.10	-9.90- -8.49	2
3	0.26-0.57	0.78-1.17	1-3	265.65-280.96	19-20	-23.09- -21.58	-8.48- -7.43	3
4	0.58-0.92	1.18-1.55	4	280.97-319.17	21-26	-21.57- -19.84	-7.42- -6.34	4
5	0.93-2.27	1.56-2.07	5-7	319.18-349.51	27-31	-19.83- -18.28	-6.33- -5.26	5
6	2.28-4.04	2.08-4.94	8-9	349.52-383.37	32-35	-18.27- -11.90	-5.25- -3.95	6
7	4.05-6.06	4.95-6.47	10-11	383.38-416.43	36-39	-11.89- -5.02	-3.94- -3.23	7
8	6.07-6.75	6.48-7.27	12-13	416.44-456.10	40-44	-5.01- -2.31	-3.22- -1.99	8
9	6.76-7.29	7.28-7.92	14-15	456.11-495.43	45-48	-2.30- -0.83	-1.98- -0.80	9
10	7.30-7.62	7.93-8.40	16	495.44-528.70	49-52	-0.82-0.32	-0.79-0.29	10
11	7.63-8.09	8.41-8.81	17	528.71-558.42	53-56	0.33-1.26	0.30-1.15	11
12	8.10-8.40	8.82-9.10	18	558.43-588.69	57-61	1.27-2.24	1.16-2.08	12
13	8.41-8.73	9.11-9.35	19	588.70-614.27	62-65	2.25-3.26	2.09-3.17	13
14	8.74-9.04	9.36-9.52	20	614.28-645.28	66-68	3.27-3.92	3.18-3.62	14
15	9.05-9.37	9.53-9.67	21	645.29-670.54	69-71	3.93-5.25	3.63-4.76	15
16	9.38-9.70	9.68-9.81	22	670.55-683.22	72-75	5.26-6.54	4.77-5.42	16
17	9.71-9.79	9.82-9.98	23-24	683.23-702.22	76-77	6.55-8.23	5.43-5.97	17
18	9.80-9.96	>9.98	25-26	702.23-754.11	78-79	8.24-8.57	5.98-7.41	18
19	9.97-10	---	---	754.12-800	80-130	8.58-20	7.42-15	19

“Raw Score” indicates:

Dimensional Card Change Sort – computed score
 Picture Sequence Memory – computed score
 Pattern Comparison – raw score
 Picture Vocabulary – theta score

Flanker – computed score
 List Sort – raw score
 Oral Reading – theta score

Raw to Scaled Score (ss) for use in Fully-corrected Formulas

Multiracial Children (3-17 years old)

SS							SS	
	DCCS	Flanker	List Sort	Picture Sequence Memory	Pattern Comparison	Reading	Vocabulary	
1	---	---	---	---	---	---	---	1
2	0-0.16	0-0.80	0-1	200-241.49	0-11	-30- -25.79	-15- -12.04	2
3	0.17-0.30	0.81-1.40	2-3	241.50-299.30	12-19	-25.78- -21.95	-12.03- -6.82	3
4	0.31-0.39	1.41-1.64	4	299.31-313.76	20-22	-21.94- -20.82	-6.81- -6.73	4
5	0.40-0.65	1.65-1.86	5	313.77-350.30	23-28	-20.81- -19.64	-6.72- -5.87	5
6	0.66-1.64	1.87-2.98	6-8	350.31-403.03	29-31	-19.63- -17.54	-5.86- -4.23	6
7	1.65-5.00	2.99-5.23	9-10	403.04-418.35	32-38	-17.53- -9.29	-4.22- -3.57	7
8	5.01-6.50	5.24-7.28	11-13	418.36-460.16	39-42	-9.28- -2.57	-3.56- -2.19	8
9	6.51-7.16	7.29-8.07	14-15	460.17-486.77	43-48	-2.56- -0.47	-2.18- -0.06	9
10	7.17-7.67	8.08-8.39	16	486.78-516.55	49-52	-0.46-0.65	-0.05-1.30	10
11	7.68-7.94	8.40-8.78	17-18	516.56-560.29	53-56	0.66-1.86	1.31-2.12	11
12	7.95-8.29	8.79-9.20	---	560.30-591.76	57-60	1.87-3.04	2.13-3.02	12
13	8.30-8.62	9.21-9.36	19	591.77-621.70	61-64	3.05-3.85	3.03-3.84	13
14	8.63-9.00	9.37-9.58	20-21	621.71-646.93	65-68	3.86-4.46	3.85-4.40	14
15	9.01-9.33	9.59-9.68	22	646.94-659.66	69-72	4.47-5.72	4.41-5.10	15
16	9.34-9.65	9.69-9.79	23	659.67-702.10	73-75	5.73-6.75	5.11-6.45	16
17	9.66-9.92	9.80-9.92	24-25	702.11-774.64	76-96	6.76-12.61	6.46-11.94	17
18	9.93-10	9.93-10	26	774.65-800	97-130	12.62-20	11.95-15	18

“Raw Score” indicates:

Dimensional Card Change Sort – computed score
 Picture Sequence Memory – computed score
 Pattern Comparison – raw score
 Picture Vocabulary – theta score

Flanker – computed score
 List Sort – raw score
 Oral Reading – theta score

Appendix 2.1 Raw Scores to Uncorrected Standard Scores Weighted and Normally Distributed against the U.S. Census.

Test	Formula
DCCS	$[(\text{DCCS raw score} - 7.71) / 1.71] * 15 + 100$
Flanker	$[(\text{Flanker raw score} - 8.29) / 1.48] * 15 + 100$
List Sort	$[(\text{List Sort raw score} - 16.69) / 3.90] * 15 + 100$
Picture Sequence Memory	$[(\text{Picture Memory raw score} - 505.59) / 99.83] * 15 + 100$
Pattern Comparison	$[(\text{Pattern Comp raw score} - 55.32) / 11.88] * 15 + 100$
Oral Reading	$[(\text{Reading raw score} - 2.80) / 5.20] * 15 + 100$
Picture Vocabulary	$[(\text{Vocabulary raw score} - 3.73) / 3.14] * 15 + 100$
Fluid Composite	$[(\text{Mean of DCC, Flanker, List Sort, Pic Seq Mem, \& Pattern Comparison Uncorrected Standard Scores} - 100.39) / 11.83] * 15 + 100$
Crystallized Composite	$[(\text{Mean of Oral Reading \& Picture Vocabulary Uncorrected Standard Scores} - 100.38) / 13.99] * 15 + 100$
Total Cognition Composite	$[(\text{Mean of Uncorrected Fluid \& Crystallized Composite Standard Scores} - 100.84) / 12.04] * 15 + 100$

Appendix 2.2 Scaled Scores to Age-Corrected Standard Scores.

Test	Formula
Adults	
DCCS	$100 + 15 * \{[(\text{DCCS scaled score}) - (14.82 - 9.83 * (\text{age}/100))] / [2.17 - 0.62 * (\text{age}/100)]\} / 1.29$
Flanker	$100 + 15 * \{[(\text{Flanker scaled score}) - (14.38 - 8.92 * (\text{age}/100))] / [2.28 - 0.63 * (\text{age}/100)]\} / 1.28$
List Sort	$100 + 15 * \{[(\text{List Sort scaled score}) - (11.98 - 7.37 * (\text{age}/100)^2)] / [2.36 - 0.34 * (\text{age}/100)]\} / 1.23$

Picture Sequence Memory	$100 + 15 * \{[(\text{Picture Seq Memory scaled score}) - (14.06 - 8.48 * (\text{age}/100))] / [2.43 - 0.72 * (\text{age}/100)]\} / 1.25$
Pattern Comparison	$100 + 15 * \{[(\text{Pattern comp scaled score}) - (14.68 - 9.62 * (\text{age}/100))] / [2.33 - 0.74 * (\text{age}/100)]\} / 1.24$
Oral Reading	$100 + 15 * \{[(\text{Reading scaled score}) - (9.68 + 0.65 * (\text{age}/100))] / [1.81 + 1.19 * (\text{age}/100)]\} / 1.26$
Picture Vocabulary	$100 + 15 * \{[(\text{Vocabulary scaled score}) - (11.41 - 0.57 * (\text{age}/100)^{-1})] / [1.86 + 1.12 * (\text{age}/100)]\} / 1.24$
Fluid Composite	$100 + 15 * [(\text{Mean of DCC, Flanker, List Sort, Pic Seq Mem, \& Pattern Comparison Age-corrected Standard Scores} - 100.15) / 10.10]$
Crystallized Composite	$100 + 15 * [(\text{Mean of Oral Reading \& Picture Vocabulary Age-corrected Standard Scores} - 100.18) / 13.64]$
Total Cognition Composite	$100 + 15 * [(\text{Mean of Age-corrected Fluid \& Crystallized Composite Standard Scores} - 100.02) / 12.93]$
Children	
DCCS	$100 + 15 * \{[(\text{DCCS scaled score}) - (-2.02 + 11.67 * (\text{age}/10)^{0.5})] / [1.35 + 0.69 * \log(\text{age}/10) + 0.71 * (\log(\text{age}/10))^2]\} / 1.28$
Flanker	$100 + 15 * \{[(\text{Flanker scaled score}) - (-3.71 + 13.96 * (\text{age}/10)^{0.5} - 0.33 * (\text{age}/10)^3)] / [-3.00 + 4.30 * (\text{age}/10)^{-0.5} + 3.07 * \log(\text{age}/10)]\} / 1.29$
List Sort	$100 + 15 * \{[(\text{List Sort scaled score}) - (13.21 - 3.18 * (\text{age}/10)^{-2} - 1.98 * \log(\text{age}/10) * (\text{age}/10)^{-2})] / [2.04 - 0.33 * (\text{age}/10)^{-1}]\} / 1.30$
Picture Sequence Memory	$100 + 15 * \{[(\text{Picture Seq Memory scaled score}) - (-2.14 + 12.32 * (\text{age}/10) - 7.84 * \log(\text{age}/10) * (\text{age}/10))] / [1.14 + 0.64 * (\text{age}/10)]\} / 1.25$
Pattern Comparison	$100 + 15 * \{[(\text{Pattern Comp scaled score}) - (-1.20 + 10.85 * (\text{age}/10)^{0.5})] / [-4.47 + 5.88 * (\text{age}/10)^{-0.5} + 3.67 * \log(\text{age}/10)]\} / 1.29$

Oral Reading	$100 + 15 * \{[(\text{Reading scaled score}) - (21.06 - 11.09*(\text{age}/10)^{-1} - 5.05*\log(\text{age}/10)*(\text{age}/10)^{-1})] / [9.97 - 8.81*(\text{age}/10)^{-0.5} - 3.28*\log(\text{age}/10)*(\text{age}/10)^{-0.5}]\} / 1.31$
Picture Vocabulary	$100 + 15 * \{[(\text{Vocabulary scaled score}) - (2.19 + 8.25*(\text{age}/10) - 0.64*(\text{age}/10)^3)] / [1.15 + 0.90*\log(\text{age}/10) + 0.88*(\log(\text{age}/10))^2]\} / 1.29$
Fluid Composite	$100 + 15 * [(\text{Mean of DCC, Flanker, List Sort, Pic Seq Mem, \& Pattern Comparison Age-corrected Standard Scores} - 100.24) / 9.24]$
Crystallized Composite	$100 + 15 * [(\text{Mean of Oral Reading \& Picture Vocabulary Age-corrected Standard Scores} - 100.05) / 12.81]$
Total Cognition Composite	$100 + 15 * [(\text{Mean of Age-corrected Fluid \& Crystallized Composite Standard Scores} - 100.25) / 12.48]$

Appendix 2.3 Scaled Scores to Fully-Corrected T-scores

Test	Formula
White/Asian Adults <i>Note: Formulas should be applied to education levels range 8-20 years; education values outside this range may result in extrapolation errors.</i>	
DCCS	$50 + 10 * \{[(\text{DCCS scaled score}) - (12.92 - 9.84*(\text{age}/100) + 1.45*(\text{edu}/10) + 0.30*\text{male})] / [1.78 - 0.63*(\text{age}/100) + 0.16*(\text{edu}/10) + 0.32*\text{male}]\} / 1.28$
Flanker	$50 + 10 * \{[(\text{Flanker scaled score}) - (15.52 - 9.25*(\text{age}/100) - 1.53*(\text{edu}/10)^{-2} + 0.29*\text{male})] / [2.23 - 0.72*(\text{age}/100) - 0.10*(\text{edu}/10) + 0.33*\text{male}]\} / 1.30$
List Sort	$50 + 10 * \{[(\text{List Sort scaled score}) - (12.89 - 8.36*(\text{age}/100) + 1.12*(\text{edu}/10) - 0.25*\text{male})] / [1.80 + 0.06*(\text{age}/100) + 0.25*(\text{edu}/10) - 0.04*\text{male}]\} / 1.22$
Picture Sequence Memory	$50 + 10 * \{[(\text{Picture Seq Memory scaled score}) - (12.72 - 8.91*(\text{age}/100) + 1.51*(\text{edu}/10) - 0.97*\text{male})] / [2.42 - 0.49*(\text{age}/100) - 0.17*(\text{edu}/10) - 0.05*\text{male}]\} / 1.25$

Pattern Comparison	$50 + 10 * \{[(\text{Pattern comp scaled score}) - (10.50 - 9.42*(\text{age}/100) + 3.75*(\text{edu}/10)^2 - 4.03*\log(\text{edu}/10)*(\text{edu}/10)^2 - 0.28*\text{male})] / [2.06 - 0.82*(\text{age}/100) + 0.08*(\text{edu}/10) + 0.34*\text{male}]\} / 1.24$
Oral Reading	$50 + 10 * \{[(\text{Reading scaled score}) - (3.55 + 0.87*(\text{age}/100) + 4.20*(\text{edu}/10) + 0.18*\text{male})] / [-2.10 + 0.73*(\text{age}/100) + 2.02*(\text{edu}/10)^{-2} + 2.04*(\text{edu}/10) - 0.16*\text{male}]\} / 1.25$
Picture Vocabulary	$50 + 10 * \{[(\text{Vocabulary scaled score}) - (2.69 + 18.50*(\text{age}/100)^2 - 19.70*(\text{age}/100)^3 + 3.92*(\text{edu}/10) - 0.09*\text{male})] / [0.82 + 1.09*(\text{age}/100) + 0.52*(\text{edu}/10) + 0.35*\text{male}]\} / 1.25$
Fluid Composite	$50 + 10 * [(\text{Mean of DCC, Flanker, List Sort, Pic Seq Mem, \& Pattern Comparison Fully-corrected T-Scores} - 50.13) / 6.60]$
Crystallized Composite	$50 + 10 * [(\text{Mean of Oral Reading \& Picture Vocabulary Fully-corrected T-Scores} - 50.10) / 8.95]$
Total Cognition Composite	$50 + 10 * [(\text{Mean of Fully-corrected Fluid \& Crystallized Composite T-Scores} - 50.07) / 8.34]$
African American Adults <i>Note: Formulas should be applied to education levels range 10-20 years; education values outside this range may result in extrapolation errors.</i>	
DCCS	$50 + 10 * \{[(\text{DCCS scaled score}) - (11.82 - 11.22*(\text{age}/100) + 2.13*(\text{edu}/10) + 0.32*\text{male})] / [3.04 - 1.17*(\text{age}/100) - 0.44*(\text{edu}/10) + 0.10*\text{male}]\} / 1.26$
Flanker	$50 + 10 * \{[(\text{Flanker scaled score}) - (11.77 - 7.52*(\text{age}/100) + 1.07*(\text{edu}/10) + 0.002*\text{male})] / [1.76 + 0.18*(\text{age}/100) + 0.22*(\text{edu}/10) + 0.37*\text{male}]\} / 1.24$
List Sort	$50 + 10 * \{[(\text{List Sort scaled score}) - (12.42 - 7.41*(\text{age}/100) + 0.57*(\text{edu}/10) + 0.58*\text{male})] / [2.14 + 0.43*(\text{age}/100) - 0.15*(\text{edu}/10) + 0.06*\text{male}]\} / 1.30$
Picture Sequence Memory	$50 + 10 * \{[(\text{Picture Seq Memory scaled score}) - (13.73 - 5.86*(\text{age}/100) - 0.67*(\text{edu}/10) - 1.15*\text{male})] / [3.53 - 1.44*(\text{age}/100) - 0.60*(\text{edu}/10) + 0.72*\text{male}]\} / 1.25$
Pattern Comparison	$50 + 10 * \{[(\text{Pattern Comp scaled score}) - (15.27 - 10.82*(\text{age}/100) - 0.51*(\text{edu}/10) + 0.66*\text{male})] / [2.50 - 0.72*(\text{age}/100) - 0.24*(\text{edu}/10) + 0.58*\text{male}]\} / 1.24$

Oral Reading	$50 + 10 * \{[(\text{Reading scaled score}) - (6.05 - 1.40*(\text{age}/100) + 3.23*(\text{edu}/10) + 0.17*\text{male})] / [1.95 + 1.09*(\text{age}/100) - 0.16*(\text{edu}/10) + 0.45*\text{male}]\} / 1.26$
Picture Vocabulary	$50 + 10 * \{[(\text{Vocabulary scaled score}) - (0.56 + 3.11*(\text{age}/100) + 5.81*(\text{edu}/10) - 0.39*\text{male})] / [2.03 - 0.45*(\text{age}/100) + 0.14*(\text{edu}/10) + 0.20*\text{male}]\} / 1.27$
Fluid Composite	$50 + 10 * [(\text{Mean of DCC, Flanker, List Sort, Pic Seq Mem, \& Pattern Comparison Fully-corrected T-Scores} - 50.05) / 6.48]$
Crystallized Composite	$50 + 10 * [((\text{Mean of Oral Reading \& Picture Vocabulary Fully-corrected T-Scores} - 50.00) / 9.19)]$
Total Cognition Composite	$10 + 10 * [(\text{Mean of Fully-corrected Fluid \& Crystallized Composite T-Scores} - 50.02) / 8.68]$
Hispanic Adults <i>Note: Formulas should be applied to education levels range 10-20 years; education values outside this range may result in extrapolation errors.</i>	
DCCS	$50 + 10 * \{[(\text{DCCS scaled score}) - (9.17 - 10.11*(\text{age}/100) + 3.51*(\text{edu}/10) + 0.18*\text{male})] / [2.18 - 0.36*(\text{age}/100) - 0.11*(\text{edu}/10) + 0.06*\text{male}]\} / 1.29$
Flanker	$50 + 10 * \{[(\text{Flanker scaled score}) - (11.56 - 10.32*(\text{age}/100) + 1.68*(\text{edu}/10) + 0.99*\text{male})] / [2.07 - 1.00*(\text{age}/100) + 0.29*(\text{edu}/10) - 0.46*\text{male}]\} / 1.30$
List Sort	$50 + 10 * \{[(\text{List Sort scaled score}) - (11.27 - 9.35*(\text{age}/100) + 1.27*(\text{edu}/10) + 1.53*\text{male})] / [2.69 - 0.54*(\text{age}/100) - 0.30*(\text{edu}/10) + 0.30*\text{male}]\} / 1.20$
Picture Sequence Memory	$50 + 10 * \{[(\text{Picture Seq Memory scaled score}) - (11.19 - 8.84*(\text{age}/100) + 1.63*(\text{edu}/10) + 0.39*\text{male})] / [1.07 + 0.09*(\text{age}/100) + 0.58*(\text{edu}/10) + 0.44*\text{male}]\} / 1.27$
Pattern Comparison	$50 + 10 * \{[(\text{Pattern Comp scaled score}) - (12.15 - 11.01*(\text{age}/100) + 1.71*(\text{edu}/10) - 0.13*\text{male})] / [1.83 - 0.63*(\text{age}/100) + 0.34*(\text{edu}/10) + 0.02*\text{male}]\} / 1.21$
Oral Reading	$50 + 10 * \{[(\text{Reading scaled score}) - (1.37 + 0.51*(\text{age}/100) + 5.84*(\text{edu}/10) + 0.40*\text{male})] / [1.66 + 2.08*(\text{age}/100) - 0.33*(\text{edu}/10) + 0.07*\text{male}]\} / 1.22$
Picture Vocabulary	$50 + 10 * \{[(\text{Vocabulary scaled score}) - (0.74 + 5.17*(\text{age}/100) + 4.91*(\text{edu}/10) + 0.74*\text{male})] / [1.74 + 1.16*(\text{age}/100) - 0.15*(\text{edu}/10) + 0.07*\text{male}]\} / 1.23$

Fluid Composite	$50 + 10 * [(Mean\ of\ DCC,\ Flanker,\ List\ Sort,\ Pic\ Seq\ Mem,\ \&\ Pattern\ Comparison\ Fully-corrected\ T-Scores) - 50.28] / 6.99]$
Crystallized Composite	$50 + 10 * [(Mean\ of\ Oral\ Reading\ \&\ Picture\ Vocabulary\ Fully-corrected\ T-Scores - 50.11) / 8.89]$
Total Cognition Composite	$50 + 10 * [(Mean\ of\ Fully-corrected\ Fluid\ \&\ Crystallized\ Composite\ T-Scores - 49.83) / 8.46]$
White/Asian Children <i>Note: Formulas should be applied to mother's education levels range 4-20 years; education values outside this range may result in extrapolation errors.</i>	
DCCS	$50 + 10 * \{[(DCCS\ scaled\ score) - (-3.61 + 12.13*(age/10)^{0.5} + 0.85*(edu/10)^3 - 1.08*\log(edu/10)*(edu/10)^3 - 0.24*male)] / [0.88 + 0.60*(age/10) - 0.13*(edu/10) + 0.08*male]\} / 1.29$
Flanker	$50 + 10 * \{[(Flanker\ scaled\ score) - (0.09 + 11.66*(age/10) - 2.71*(age/10)^2 + 0.60*(edu/10) + 0.02*male)] / [8.45 - 7.31*(age/10)^{-0.5} - 2.70*\log(age/10)*(age/10)^{-0.5} + 0.09*(edu/10) + 0.07*male]\} / 1.28$
List Sort	$50 + 10 * \{[(List\ Sort\ scaled\ score) - (11.90 - 3.31*(age/10)^{-2} - 2.09*\log(age/10)*(age/10)^{-2} + 1.17*(edu/10) - 0.05*male)] / [2.06 - 0.56*(age/10)^{-2} - 0.39*\log(age/10)*(age/10)^{-2} + 0.17*(edu/10) + 0.05*male]\} / 1.27$
Picture Sequence Memory	$50 + 10 * \{[(Picture\ Seq\ Memory\ scaled\ score) - (17.14 - 7.68*(age/10)^{-0.5} + 0.56*(edu/10) - 0.11*male)] / [1.07 + 0.60*(age/10) + 0.08*(edu/10) - 0.001*male]\} / 1.25$
Pattern Comparison	$50 + 10 * \{[(Pattern\ Comp\ scaled\ score) - (-2.04 + 11.23*(age/10)^{0.5} + 0.47*(edu/10) - 0.29*male)] / [1.31 + 0.71*\log(age/10) + 0.74*(\log(age/10))^2 + 0.03*(edu/10) + 0.06*male]\} / 1.31$
Oral Reading	$50 + 10 * \{[(Reading\ scaled\ score) - (7.68 + 0.26*(age/10)^{-2} + 6.78*\log(age/10) + 1.42*(edu/10) - 0.03*male)] / [5.48 + 2.46*(age/10)^{-1} - 7.02*(age/10)^{-0.5} + 0.13*(edu/10) + 0.09*male]\} / 1.30$

Picture Vocabulary	$50 + 10 * \{[(\text{Vocabulary scaled score}) - (0.52 + 8.27*(\text{age}/10) - 0.58*(\text{age}/10)^3 + 0.98*(\text{edu}/10)^3 - 1.15*\log(\text{edu}/10)*(\text{edu}/10)^3 + 0.19*\text{male})] / [9.71 - 9.04*(\text{age}/10)^{-0.5} - 3.56*\log(\text{age}/10)*(\text{age}/10)^{-0.5} + 0.26*(\text{edu}/10) + 0.15*\text{male}]\} / 1.27$
Fluid Composite	$50 + 10 * [(\text{Mean of DCC, Flanker, List Sort, Pic Seq Mem, \& Pattern Comparison Fully-corrected T-Scores} - 50.09) / 5.95]$
Crystallized Composite	$50 + 10 * [(\text{Mean of Oral Reading \& Picture Vocabulary Fully-corrected T-Scores} - 49.96) / 8.45]$
Total Cognition Composite	$50 + 10 * [(\text{Mean of Fully-corrected Fluid \& Crystallized Composite T-Scores} - 50.08) / 8.11]$
African American Children <i>Note: Formulas should be applied to mother's education levels range 3-20 years; education values outside this range may result in extrapolation errors.</i>	
DCCS	$50 + 10 * \{[(\text{DCCS scaled score}) - (9.35 + 5.30*\log(\text{age}/10) + 0.42*(\text{edu}/10) - 0.10*\text{male})] / [1.30 + 0.44*(\text{age}/10) - 0.10*(\text{edu}/10) - 0.07*\text{male}]\} / 1.27$
Flanker	$50 + 10 * \{[(\text{Flanker scaled score}) - (9.51 + 5.53*\log(\text{age}/10) + 0.29*(\text{edu}/10) - 0.06*\text{male})] / [0.48 + 0.86*(\text{age}/10) + 0.07*(\text{edu}/10) + 0.02*\text{male}]\} / 1.26$
List Sort	$50 + 10 * \{[(\text{List Sort scaled score}) - (18.20 - 9.53*(\text{age}/10)^{-0.5} + 0.91*(\text{edu}/10) + 0.41*\text{male})] / [0.86 + 0.57*(\text{age}/10) + 0.16*(\text{edu}/10) + 0.16*\text{male}]\} / 1.26$
Picture Sequence Memory	$50 + 10 * \{[(\text{Picture Seq Memory scaled score}) - (16.40 - 7.70*(\text{age}/10)^{-0.5} + 1.03*(\text{edu}/10) - 0.09*\text{male})] / [1.14 + 0.60*(\text{age}/10) + 0.15*(\text{edu}/10) - 0.02*\text{male}]\} / 1.22$
Pattern Comparison	$50 + 10 * \{[(\text{Pattern Comp scaled score}) - (23.25 + 1.02*(\text{age}/10)^{-2} - 15.13*(\text{age}/10)^{-0.5} + 0.54*(\text{edu}/10) - 0.29*\text{male})] / [2.92 - 0.88*(\text{age}/10)^{-2} - 0.89*\log(\text{age}/10)*(\text{age}/10)^{-2} - 0.37*(\text{edu}/10) + 0.06*\text{male}]\} / 1.27$
Oral Reading	$50 + 10 * \{[(\text{Reading scaled score}) - (-0.73 + 10.54*(\text{age}/10) - 1.31*(\text{age}/10)^3 + 1.26*(\text{edu}/10) - 0.01*\text{male})] / [0.04 + 1.02*(\text{age}/10) + 0.11*(\text{edu}/10) + 0.19*\text{male}]\} / 1.31$

Picture Vocabulary	$50 + 10 * \{[(\text{Vocabulary scaled score}) - (1.90 + 9.41*(\text{age}/10)^2 - 3.82*(\text{age}/10)^3 + 1.58*(\text{edu}/10) + 0.34*\text{male})] / [0.89 + 0.63*(\text{age}/10) - 0.20*(\text{edu}/10) + 0.22*\text{male}]\} / 1.30$
Fluid Composite	$50 + 10 * [(\text{Mean of DCC, Flanker, List Sort, Pic Seq Mem, \& Pattern Comparison Fully-corrected T-Scores} - 50.15) / 6.24]$
Crystallized Composite	$50 + 10 * [(\text{Mean of Oral Reading \& Picture Vocabulary Fully-corrected T-Scores} - 49.96) / 8.52]$
Total Cognition Composite	$50 + 10 * [(\text{Mean of Fully-corrected Fluid \& Crystallized Composite T-Scores} - 50.37) / 8.30]$
Hispanic Children <i>Note: Formulas should be applied to mother's education levels range 3-18 years; education values outside this range may result in extrapolation errors.</i>	
DCCS	$50 + 10 * \{[(\text{DCCS scaled score}) - (-2.27 + 11.50*(\text{age}/10)^{0.5} + 0.48*(\text{edu}/10) - 0.05*\text{male})] / [1.06 + 0.43*(\text{age}/10) - 0.09*(\text{edu}/10) + 0.10*\text{male}]\} / 1.30$
Flanker	$50 + 10 * \{[(\text{Flanker scaled score}) - (9.58 + 5.25*\log(\text{age}/10) + 0.31*(\text{edu}/10) + 0.37*\text{male})] / [0.91 + 0.72*(\text{age}/10) - 0.41*(\text{edu}/10)^3 + 0.74*\log(\text{edu}/10)*(\text{edu}/10)^3 + 0.20*\text{male}]\} / 1.31$
List Sort	$50 + 10 * \{[(\text{List Sort scaled score}) - (17.70 - 8.99*(\text{age}/10)^{-0.5} + 1.17*(\text{edu}/10) + 0.26*\text{male})] / [1.12 + 0.48*(\text{age}/10) - 0.004*(\text{edu}/10) + 0.12*\text{male}]\} / 1.24$
Picture Sequence Memory	$50 + 10 * \{[(\text{Picture Seq Memory scaled score}) - (16.35 - 7.57*(\text{age}/10)^{-0.5} + 1.22*(\text{edu}/10) + 0.12*\text{male})] / [1.44 + 0.75*(\text{age}/10) - 0.43*(\text{edu}/10) + 0.07*\text{male}]\} / 1.25$
Pattern Comparison	$50 + 10 * \{[(\text{Pattern Comp scaled score}) - (-1.06 + 10.96*(\text{age}/10)^{0.5} + 0.07*(\text{edu}/10) - 0.21*\text{male})] / [0.32 + 0.63*(\text{age}/10) + 0.42*(\text{edu}/10) + 0.07*\text{male}]\} / 1.29$
Oral Reading	$50 + 10 * \{[(\text{Reading scaled score}) - (16.38 + 1.43*(\text{age}/10)^{-2} - 8.60*(\text{age}/10)^{-1} + 0.93*(\text{edu}/10) - 0.03*\text{male})] / [0.72 + 0.84*(\text{age}/10) - 0.37*(\text{edu}/10)^3 + 0.68*\log(\text{edu}/10)*(\text{edu}/10)^3 + 0.03*\text{male}]\} / 1.35$

Picture Vocabulary	$50 + 10 * \{[(\text{Vocabulary scaled score}) - (-3.46 + 11.91 * (\text{age}/10)^{0.5} + 1.18 * (\text{edu}/10) + 0.04 * \text{male})] / [0.67 + 0.56 * (\text{age}/10) - 0.10 * (\text{edu}/10) + 0.16 * \text{male}]\} / 1.29$
Fluid Composite	$50 + 10 * [(\text{Mean of DCC, Flanker, List Sort, Pic Seq Mem, \& Pattern Comparison Fully-corrected T-Scores} - 50.06) / 6.18]$
Crystallized Composite	$50 + 10 * [(\text{Mean of Oral Reading \& Picture Vocabulary Fully-corrected T-Scores} - 49.99) / 8.58]$
Total Cognition Composite	$50 + 10 * [(\text{Mean of Fully-corrected Fluid \& Crystallized Composite T-Scores} - 50.21) / 8.03]$
Multiracial Children <i>Note: Formulas should be applied to mother's education levels range 8-20 years; education values outside this range may result in extrapolation errors.</i>	
DCCS	$50 + 10 * \{[(\text{DCCS scaled score}) - (2.23 + 5.94 * (\text{age}/10) + 1.31 * (\text{edu}/10) + 0.07 * \text{male})] / [0.03 + 0.30 * (\text{age}/10) + 0.87 * (\text{edu}/10) + 0.02 * \text{male}]\} / 1.23$
Flanker	$50 + 10 * \{[(\text{Flanker scaled score}) - (-4.21 + 11.60 * (\text{age}/10)^{0.5} + 2.12 * (\text{edu}/10) + 0.24 * \text{male})] / [1.61 + 0.47 * (\text{age}/10) - 0.59 * (\text{edu}/10) - 0.19 * \text{male}]\} / 1.23$
List Sort	$50 + 10 * \{[(\text{List Sort scaled score}) - (17.96 - 8.02 * (\text{age}/10)^{-0.5} + 0.33 * (\text{edu}/10) + 0.12 * \text{male})] / [1.80 + 0.36 * (\text{age}/10) - 0.18 * (\text{edu}/10) - 0.28 * \text{male}]\} / 1.22$
Picture Sequence Memory	$50 + 10 * \{[(\text{Picture Seq Memory scaled score}) - (5.70 + 4.34 * \log(\text{age}/10) + 3.23 * (\text{edu}/10) + 0.91 * \text{male})] / [1.56 + 0.43 * (\text{age}/10) - 0.38 * (\text{edu}/10) + 0.16 * \text{male}]\} / 1.24$
Pattern Comparison	$50 + 10 * \{[(\text{Pattern Comp scaled score}) - (2.83 + 5.98 * (\text{age}/10) + 0.81 * (\text{edu}/10) + 0.15 * \text{male})] / [0.69 + 0.47 * (\text{age}/10) + 0.03 * (\text{edu}/10) + 0.29 * \text{male}]\} / 1.25$
Oral Reading	$50 + 10 * \{[(\text{Reading scaled score}) - (7.68 + 5.02 * \log(\text{age}/10) + 2.11 * (\text{edu}/10) + 0.32 * \text{male})] / [-0.87 + 0.86 * (\text{age}/10) + 0.93 * (\text{edu}/10) + 0.04 * \text{male}]\} / 1.35$
Picture Vocabulary	$50 + 10 * \{[(\text{Vocabulary scaled score}) - (7.10 + 5.15 * \log(\text{age}/10) + 3.01 * (\text{edu}/10) - 0.76 * \text{male})] / [0.49 + 0.76 * (\text{age}/10) - 0.10 * (\text{edu}/10) - 0.16 * \text{male}]\} / 1.23$
Fluid Composite	$50 + 10 * [(\text{Mean of DCC, Flanker, List Sort, Pic Seq Mem, \& Pattern Comparison Fully-corrected T-Scores} - 50.53) / 6.51]$

Crystallized Composite	$50 + 10 * [(Mean\ of\ Oral\ Reading\ \&\ Picture\ Vocabulary\ Fully-corrected\ T-Scores - 50.29) / 8.03]$
Total Cognition Composite	$50 + 10 * [(Mean\ of\ Fully-corrected\ Fluid\ \&\ Crystallized\ Composite\ T-Scores - 50.86) / 8.48]$

Note: Sex: 0 = Female and 1 = Male; log is natural log. For children, “edu” = mother’s years of education.