

Item Parameter Estimates for the TIMSS 2015 Science and Literacy Learning Biology Scale, Eighth Grade

Item	Intercept	Difficulty 1	Difficulty 2	Difficulty 3	Item Information
22	-0.2171	-1.373	-0.372	1.7720	0.7
22*	0.1	-0.770	-0.3707	1.3327	1.3
22	0.327	-1.1231	-0.3732	1.	1.3
22	-0.7072	-1.02	-0.001	1.707	0.
22	-0.0	-1.270	-0.213	1.7122	0.3
22	0.730	-1.20	-0.003	1.277	0.7
22	-0.717	-1.000	-0.7172	1.3072	1.1
22	-0.217	-1.07022	-0.37	1.707	1.27
22	0.713	-1.377	0.072	1.2007	0.7

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Scale Transformation Constant for the TIMSS 2015 Science and Literacy Learning Biology Scale, Eighth Grade

2.7	Transformed Scale Score = 8.424458 + 1.150254 • Logit Scale Score
1.1027	

Exhibits Table of Raw and Transformed Scale Scores for the TIMSS 2015 Student Learning Biology Scale, Eighth Grade

Raw Score	Transformed Score	Percentile Rank
0	3.22	
1	3.770	
2	4.317	
3	4.864	
4	5.411	
5	5.958	
6	6.505	
7	7.052	
8	7.599	
9	8.146	
10	8.693	
11	9.240	
12	9.787	
13	10.334	3
14	10.881	
15	11.428	
16	11.975	
17	12.522	
18	13.069	
19	13.616	
20	14.163	
21	14.710	
22	15.257	
23	15.804	10.7
24	16.351	
25	16.898	
26	17.445	
27	17.992	

Cronbach's Alpha Reliability Coefficient and Principal Component Analysis of the Items in the TIMSS 2015 Student Learning Biology Scale, Eighth Grade

Item	Cronbach's Alpha	Cronbach's Alpha if Item Deleted	Principal Component Analysis									
			1	2	3	4	5	6	7	8	9	10
Item 1	0.77	0.76	0.10	0.33	0.77	0.77	0.77	0.77	0.00	0.20	0.77	
Item 2	0.10	0.10	0.77	0.00	0.77	0.77	0.10	0.00	0.33	0.33	0.00	
Item 3	0.77	0.76	0.00	0.33	0.00	0.00	0.77	0.10	0.00	0.73	0.33	
Item 4	0.00	0.00	0.77	0.20	0.33	0.77	0.77	0.00	0.77	0.77	0.33	
Item 5	0.20	0.20	0.00	0.00	0.71	0.00	0.10	0.00	0.71	0.77	0.33	
Item 6	0.20	0.20	0.77	0.77	0.77	0.77	0.10	0.00	0.77	0.77	0.00	
Item 7	0.77	0.76	0.77	0.33	0.00	0.77	0.77	0.33	0.00	0.71	0.77	
Item 8	0.00	0.00	0.33	0.00	0.00	0.77	0.00	0.10	0.77	0.00	0.00	
Item 9	0.33	0.33	0.77	0.00	0.77	0.00	0.10	0.00	0.77	0.77	0.77	
Item 10	0.20	0.20	0.77	0.70	0.77	0.33	0.10	0.00	0.00	0.77	0.00	

Table 15.10: Cronbach's Alpha Reliability Coefficient and Principal Component Analysis of the Items in the TIMSS 2015 Student Learning Biology Scale, Eighth Grade



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