



**Item Parameters for the TIMSS 2015 Home Educational Resources Scale, Eighth Grade**

Item	delta	tau_1	tau_2	tau_3	tau_4	Infit
BSBG04	0.83301	-1.03371	-0.22069	0.78431	0.47009	1.00
BSDG06S	-0.73962	-0.64211	0.64211			0.97
BSDGEDUP	-0.09339	-0.73961	-0.50760	0.77465	0.47256	0.97

**Scale Transformation Constants for the TIMSS 2015 Home Educational Resources Scale, Eighth Grade**

Scale Transformation Constants	
A = 9.211881	Transformed Scale Score = 9.211881 + 1.80992 • Logit Scale Score
B = 1.80992	

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2015

**Equivalence Table of Raw and Transformed Scale Scores for the TIMSS  
2015 Home Educational Resources Scale, Eighth Grade**

Raw Score	Transformed Scale Score	Cutpoint
0	4.23163	
1	6.35011	
2	7.44587	
3	8.27061	8.3
4	8.97690	
5	9.62284	
6	10.26361	
7	10.91820	
8	11.62210	
9	12.45383	12.4
10	13.88377	

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2015

**Cronbach's Alpha Reliability Coefficient and Principal Components Analysis of the Items in the TIMSS 2015 Home Educational Resources Scale, Eighth Grade**

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Factor Loadings for Each Item		
			BS3G04	BS0G06S	BS3G06UP
Australia	0.40	46	0.77	0.42	0.78
Bahrain	0.40	46	0.70	0.52	0.79
Botswana (9)	0.47	50	0.63	0.71	0.77
Canada	0.35	44	0.77	0.38	0.77
Chile	0.44	48	0.69	0.57	0.79
Chinese Taipei	0.46	48	0.81	0.34	0.82
Egypt	0.39	46	0.57	0.70	0.75
England	0.44	47	0.80	0.37	0.80
Georgia	0.54	53	0.79	0.58	0.79
Hong Kong SAR	0.50	51	0.75	0.56	0.80
Hungary	0.56	54	0.87	0.33	0.87
Iran, Islamic Rep. of	0.63	59	0.75	0.71	0.83
Ireland	0.42	47	0.80	0.30	0.82
Israel	0.51	68	0.82	-	0.82
Italy	0.46	48	0.80	0.37	0.82
Japan	0.34	44	0.73	0.45	0.76
Jordan	0.46	49	0.64	0.67	0.77
Kazakhstan	0.50	51	0.76	0.68	0.70
Korea, Rep. of	0.41	47	0.74	0.54	0.75
Kuwait	0.27	40	0.71	0.36	0.76
Lebanon	0.37	44	0.71	0.48	0.77
Lithuania	0.45	49	0.78	0.48	0.78
Malaysia	0.52	51	0.71	0.66	0.78
Malta	0.37	45	0.80	0.16	0.82
Morocco	0.55	54	0.73	0.69	0.77
New Zealand	0.43	48	0.77	0.57	0.73
Norway (9)	0.38	47	0.77	0.44	0.78
Oman	0.44	48	0.63	0.65	0.78
Qatar	0.34	43	0.71	0.43	0.78
Russian Federation	0.39	45	0.78	0.36	0.78
Saudi Arabia	0.38	45	0.68	0.50	0.79
Singapore	0.44	48	0.73	0.53	0.79
Slovenia	0.43	47	0.80	0.31	0.82
South Africa (9)	0.45	48	0.61	0.71	0.75
Sweden	0.39	46	0.79	0.46	0.75
Thailand	0.49	50	0.73	0.60	0.78
Turkey	0.62	58	0.78	0.70	0.80
United Arab Emirates	0.35	44	0.72	0.51	0.73
United States	0.47	49	0.73	0.55	0.80
<b>Benchmarking Participants</b>					
Buenos Aires, Argentina	0.58	54	0.78	0.58	0.83
Ontario, Canada	0.36	45	0.76	0.44	0.76
Quebec, Canada	0.38	45	0.80	0.27	0.80
Norway (8)	0.37	46	0.76	0.41	0.78
Abu Dhabi, UAE	0.34	43	0.72	0.48	0.74
Dubai, UAE	0.38	45	0.73	0.57	0.71
Florida, US	0.43	48	0.72	0.56	0.78

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2015

A dash (-) indicates comparable data not available.

**Relationship Between the TIMSS 2015 Home Educational Resources Scale, Eighth Grade, and TIMSS 2015 Achievement**

Country	Pearson's Correlation with Achievement				Variance in Achievement Accounted for by Difference Between Regions of the Scale ( $\eta^2$ )	
	(r)		(r)		Mathematics	Science
	Mathematics	Science	Mathematics	Science		
Australia	0.38	0.45	0.15	0.20	0.09	0.13
Bahrain	0.26	0.26	0.07	0.07	0.03	0.03
Botswana (9)	0.18	0.18	0.03	0.03	0.03	0.03
Canada	0.33	0.40	0.11	0.16	0.07	0.10
Chile	0.38	0.38	0.15	0.14	0.08	0.08
Chinese Taipei	0.44	0.47	0.19	0.22	0.14	0.15
Egypt	0.21	0.20	0.05	0.04	0.04	0.03
England	0.48	0.52	0.23	0.27	0.17	0.19
Georgia	0.35	0.36	0.12	0.13	0.07	0.09
Hong Kong SAR	0.29	0.30	0.08	0.09	0.06	0.06
Hungary	0.60	0.57	0.37	0.32	0.27	0.24
Iran, Islamic Rep. of	0.40	0.41	0.16	0.17	0.13	0.14
Ireland	0.45	0.48	0.20	0.23	0.13	0.15
Israel	0.45	0.47	0.20	0.22	0.09	0.09
Italy	0.39	0.42	0.15	0.17	0.11	0.13
Japan	0.39	0.35	0.15	0.13	0.10	0.08
Jordan	0.28	0.33	0.08	0.11	0.05	0.07
Kazakhstan	0.17	0.18	0.03	0.03	0.02	0.02
Korea, Rep. of	0.35	0.33	0.12	0.11	0.10	0.09
Kuwait	0.28	0.28	0.08	0.08	0.04	0.04
Lebanon	0.23	0.26	0.05	0.07	0.04	0.04
Lithuania	0.41	0.43	0.17	0.18	0.10	0.11
Malaysia	0.32	0.33	0.10	0.11	0.07	0.07
Malta	0.39	0.41	0.15	0.17	0.11	0.12
Morocco	0.20	0.15	0.04	0.02	0.03	0.02
New Zealand	0.47	0.50	0.22	0.25	0.13	0.15
Norway (9)	0.38	0.42	0.15	0.17	0.10	0.12
Oman	0.21	0.17	0.04	0.03	0.03	0.02
Qatar	0.40	0.37	0.16	0.14	0.09	0.08
Russian Federation	0.22	0.26	0.05	0.07	0.02	0.03
Saudi Arabia	0.23	0.25	0.05	0.06	0.03	0.03
Singapore	0.38	0.42	0.15	0.18	0.09	0.11
Slovenia	0.34	0.38	0.12	0.14	0.06	0.08
South Africa (9)	0.30	0.31	0.09	0.10	0.07	0.07
Sweden	0.42	0.45	0.17	0.21	0.11	0.15
Thailand	0.32	0.33	0.10	0.11	0.07	0.08
Turkey	0.45	0.43	0.21	0.19	0.16	0.15
United Arab Emirates	0.35	0.34	0.12	0.11	0.07	0.07
United States	0.40	0.42	0.16	0.17	0.11	0.12
<b>International Median</b>	<b>0.35</b>	<b>0.37</b>	<b>0.12</b>	<b>0.13</b>	<b>0.08</b>	<b>0.08</b>
<b>Benchmarking Participants</b>						
Buenos Aires, Argentina	0.44	0.41	0.19	0.17	0.13	0.11
Ontario, Canada	0.36	0.41	0.13	0.17	0.09	0.11
Quebec, Canada	0.36	0.42	0.13	0.17	0.07	0.10
Norway (8)	0.37	0.39	0.14	0.15	0.08	0.09
Abu Dhabi, UAE	0.35	0.34	0.12	0.11	0.08	0.07
Dubai, UAE	0.36	0.36	0.13	0.13	0.08	0.08
Florida, US	0.39	0.41	0.15	0.17	0.10	0.11

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2015