

Home Resources for Learning Scale, Fourth Grade

The Home Resources for Learning (HRL) scale was created based on students' and parents' responses concerning the availability of five resources described below.

Items in the TIMSS 2015 Home Resources for Learning Scale, Fourth Grade

T ASBG04	<p>Number of books in the home (students):</p> <p>1) 0-10 2) 11-25 3) 26-100 4) 101-200 5) More than 200</p>	<p>Number of children's books in the home (parents):</p> <p>1) 0-10 2) 11-25 3) 26-50 4) 51-100 5) More than 100</p>	T ASBH14
T ASDG05S ¹	<p>Number of home study supports (students):</p> <p>1) None 2) Internet connection or own room 3) Both</p>	<p>Highest level of education of either parent (parents):</p> <p>1) Finished some primary or lower secondary or did not go to school 2) Finished lower secondary 3) Finished upper secondary 4) Finished post-secondary education 5) Finished university or higher</p>	T ASDHEDUP ¹
T ASDHOCCP ¹	<p>Highest level of occupation of either parent (parents):</p> <p>1) Has never worked outside home for pay, general laborer, or semi-professional (skilled agricultural or fishery worker, craft or trade worker, plant or machine operator) 2) Clerical (clerk or service or sales worker) 3) Small business owner 4) Professional (corporate manager or senior official, professional, or technician or associate professional)</p>		

T Trend item—item was included in the same scale in TIMSS 2011 and was used for linking the TIMSS 2011 and TIMSS 2015 scales.

1 Derived variable. For more details, see Supplement 3 of the User Guide for the [TIMSS 2015 International Database](#).

Item Parameters for the TIMSS 2015 Home Resources for Learning Scale, Fourth Grade

Item	delta	tau_1	tau_2	tau_3	tau_4	Infit
ASBG04	0.50877	-1.25665	-0.44740	0.93994	0.76411	1.01
ASBH14	0.58514	-0.74466	-0.46122	0.43512	0.77076	0.96
ASDG05S	-0.78604	-0.78596	0.78596			1.08
ASDHEDUP	-0.40313	-0.37335	-0.98713	0.84623	0.51425	0.94
ASDHOCCP	0.09526	-0.32617	0.95244	-0.62627		1.02

Scale Transformation Constants for the TIMSS 2015 Home Resources for Learning Scale, Fourth Grade

Scale Transformation Constants	
A = 9.487504	Transformed Scale Score = 9.487504 + 1.844284 • Logit Scale Score
B = 1.844284	

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

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

Raw Score	Transformed Scale Score	Cutpoint
0	3.68952	
1	5.69990	
2	6.65832	
3	7.34373	7.4
4	7.90391	
5	8.38881	
6	8.82316	
7	9.21608	
8	9.57946	
9	9.92615	
10	10.27747	
11	10.63489	
12	11.01616	
13	11.43841	
14	11.92828	11.9
15	12.52570	
16	13.35902	
17	15.03850	

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 Resources for Learning
Scale, Fourth Grade**

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Component Loadings for Each Item				
			ASB604	ASBH14	ASD025	ASDHEDUP	ASDH0CCP
Australia	0.62	41	0.66	0.66	0.33	0.74	0.73
Bahrain	0.55	36	0.50	0.64	0.26	0.75	0.71
Belgium (Flemish)	0.70	47	0.67	0.72	0.34	0.79	0.79
Bulgaria	0.83	60	0.78	0.82	0.48	0.89	0.82
Canada	0.56	37	0.70	0.70	0.33	0.61	0.62
Chile	0.66	43	0.52	0.68	0.41	0.82	0.76
Chinese Taipei	0.71	48	0.78	0.80	0.21	0.77	0.72
Croatia	0.68	46	0.68	0.75	0.22	0.79	0.76
Cyprus	0.62	41	0.65	0.73	0.25	0.76	0.67
Czech Republic	0.67	44	0.71	0.74	0.20	0.76	0.73
Denmark	0.64	42	0.71	0.72	0.29	0.68	0.72
England	-	-	-	-	-	-	-
Finland	0.60	39	0.65	0.69	0.10	0.75	0.72
France	0.72	48	0.72	0.76	0.32	0.81	0.74
Georgia	0.66	44	0.68	0.75	0.36	0.74	0.70
Germany	0.65	43	0.73	0.74	0.09	0.76	0.69
Hong Kong SAR	0.76	52	0.75	0.82	0.29	0.82	0.78
Hungary	0.80	57	0.78	0.84	0.27	0.87	0.83
Indonesia	0.58	37	0.46	0.55	0.37	0.79	0.76
Iran, Islamic Rep. of	0.74	49	0.69	0.72	0.57	0.79	0.70
Ireland	0.68	45	0.72	0.75	0.17	0.77	0.75
Italy	0.67	44	0.66	0.74	0.11	0.80	0.77
Japan	0.61	40	0.68	0.74	0.30	0.71	0.62
Jordan	0.55	36	0.50	0.49	0.50	0.74	0.71
Kazakhstan	0.61	40	0.63	0.63	0.54	0.68	0.65
Korea, Rep. of	0.63	41	0.72	0.72	0.38	0.73	0.59
Kuwait	0.42	31	0.45	0.56	0.12	0.71	0.70
Lithuania	0.72	48	0.70	0.76	0.39	0.78	0.75
Morocco	0.71	45	0.68	0.63	0.62	0.77	0.65
Netherlands	0.62	41	0.63	0.68	0.01	0.81	0.72
New Zealand	0.65	42	0.68	0.72	0.34	0.73	0.71
Northern Ireland	0.70	46	0.72	0.75	0.17	0.80	0.76
Norway (5)	0.65	43	0.66	0.73	0.25	0.78	0.73
Oman	0.59	38	0.42	0.59	0.36	0.82	0.76
Poland	0.73	49	0.68	0.74	0.32	0.84	0.80
Portugal	0.75	50	0.72	0.78	0.24	0.82	0.80
Qatar	0.53	35	0.46	0.66	0.26	0.73	0.71
Russian Federation	0.65	42	0.65	0.72	0.31	0.75	0.72
Saudi Arabia	0.50	33	0.36	0.51	0.33	0.79	0.74
Serbia	0.71	47	0.67	0.77	0.26	0.80	0.77
Singapore	0.68	45	0.69	0.71	0.33	0.78	0.72
Slovak Republic	0.77	53	0.78	0.82	0.28	0.82	0.79
Slovenia	0.65	43	0.62	0.72	0.06	0.80	0.77
South Africa (5)	0.62	39	0.57	0.55	0.58	0.69	0.70
Spain	0.69	46	0.67	0.74	0.15	0.83	0.78
Sweden	0.67	46	0.71	0.76	0.42	0.74	0.70
Turkey	0.74	49	0.67	0.74	0.59	0.80	0.69
United Arab Emirates	0.58	37	0.58	0.71	0.33	0.68	0.66
United States	-	-	-	-	-	-	-
Benchmarking Participants							
Buenos Aires, Argentina	0.70	46	0.60	0.75	0.31	0.80	0.81
Ontario, Canada	0.55	36	0.65	0.66	0.35	0.62	0.65
Quebec, Canada	0.62	40	0.74	0.75	0.34	0.66	0.60
Norway (4)	0.64	43	0.65	0.69	0.27	0.80	0.75
Abu Dhabi, UAE	0.59	38	0.56	0.70	0.30	0.72	0.69
Dubai, UAE	0.59	38	0.69	0.78	0.36	0.61	0.56
Florida, US	-	-	-	-	-	-	-

A dash (-) indicates comparable data not available.

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

Relationship Between the TIMSS 2015 Home Resources for Learning Scale, Fourth Grade, and TIMSS 2015 Achievement

Country	Pearson's Correlation with Achievement				Variance in Achievement Accounted for by Difference Between Regions of the Scale (η^2)	
	(r)		(r)		Mathematics	Science
	Mathematics	Science	Mathematics	Science		
Australia	0.38	0.40	0.15	0.16	0.11	0.12
Bahrain	0.30	0.28	0.09	0.08	0.05	0.04
Belgium (Flemish)	0.43	0.50	0.18	0.25	0.11	0.16
Bulgaria	0.35	0.46	0.13	0.22	0.10	0.16
Canada	0.33	0.39	0.11	0.15	0.07	0.09
Chile	0.34	0.37	0.11	0.13	0.06	0.07
Chinese Taipei	0.39	0.42	0.15	0.18	0.10	0.12
Croatia	0.40	0.41	0.16	0.16	0.08	0.09
Cyprus	0.34	0.39	0.12	0.15	0.07	0.08
Czech Republic	0.47	0.46	0.22	0.21	0.14	0.13
Denmark	0.35	0.37	0.12	0.13	0.09	0.10
England	-	-	-	-	-	-
Finland	0.33	0.36	0.11	0.13	0.08	0.08
France	0.46	0.46	0.21	0.21	0.15	0.15
Georgia	0.35	0.38	0.12	0.15	0.06	0.07
Germany	0.43	0.47	0.18	0.22	0.11	0.14
Hong Kong SAR	0.40	0.39	0.16	0.15	0.12	0.12
Hungary	0.57	0.56	0.33	0.32	0.25	0.24
Indonesia	0.29	0.30	0.08	0.09	0.05	0.06
Iran, Islamic Rep. of	0.46	0.45	0.21	0.20	0.14	0.14
Ireland	0.45	0.45	0.20	0.21	0.13	0.14
Italy	0.34	0.39	0.11	0.15	0.06	0.07
Japan	0.41	0.38	0.17	0.14	0.08	0.07
Jordan	0.38	-	0.14	-	0.06	-
Kazakhstan	0.19	0.21	0.04	0.04	0.02	0.02
Korea, Rep. of	0.47	0.46	0.23	0.22	0.16	0.15
Kuwait	0.24	0.24	0.06	0.06	0.02	0.02
Lithuania	0.45	0.46	0.21	0.21	0.11	0.11
Morocco	0.15	0.15	0.02	0.02	0.02	0.03
Netherlands	0.25	0.35	0.06	0.12	0.04	0.08
New Zealand	0.43	0.49	0.18	0.24	0.12	0.16
Northern Ireland	0.49	0.51	0.24	0.26	0.17	0.19
Norway (5)	0.35	0.37	0.12	0.14	0.09	0.10
Oman	0.24	0.24	0.06	0.06	0.03	0.03
Poland	0.44	0.44	0.19	0.19	0.13	0.13
Portugal	0.40	0.38	0.16	0.14	0.11	0.09
Qatar	0.39	0.37	0.15	0.14	0.08	0.07
Russian Federation	0.32	0.39	0.11	0.15	0.05	0.07
Saudi Arabia	0.12	0.17	0.01	0.03	0.01	0.02
Serbia	0.44	0.43	0.19	0.19	0.11	0.11
Singapore	0.48	0.52	0.23	0.28	0.15	0.18
Slovak Republic	0.53	0.55	0.28	0.31	0.19	0.21
Slovenia	0.41	0.39	0.17	0.15	0.10	0.09
South Africa (5)	0.41	-	0.17	-	0.12	-
Spain	0.40	0.40	0.16	0.16	0.10	0.11
Sweden	0.44	0.48	0.19	0.23	0.13	0.16
Turkey	0.51	0.48	0.26	0.23	0.19	0.17
United Arab Emirates	0.42	0.42	0.18	0.17	0.09	0.08
United States	-	-	-	-	-	-
International Median	0.40	0.39	0.16	0.16	0.10	0.10
Benchmarking Participants						
Buenos Aires, Argentina	0.45	0.32	0.20	0.10	0.10	0.07
Ontario, Canada	0.35	0.38	0.12	0.14	0.08	0.10
Quebec, Canada	0.34	0.38	0.12	0.14	0.07	0.08
Norway (4)	0.40	0.45	0.16	0.20	0.10	0.13
Abu Dhabi, UAE	0.45	0.43	0.20	0.18	0.09	0.08
Dubai, UAE	0.41	0.39	0.17	0.15	0.10	0.08
Florida, US	-	-	-	-	-	-

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