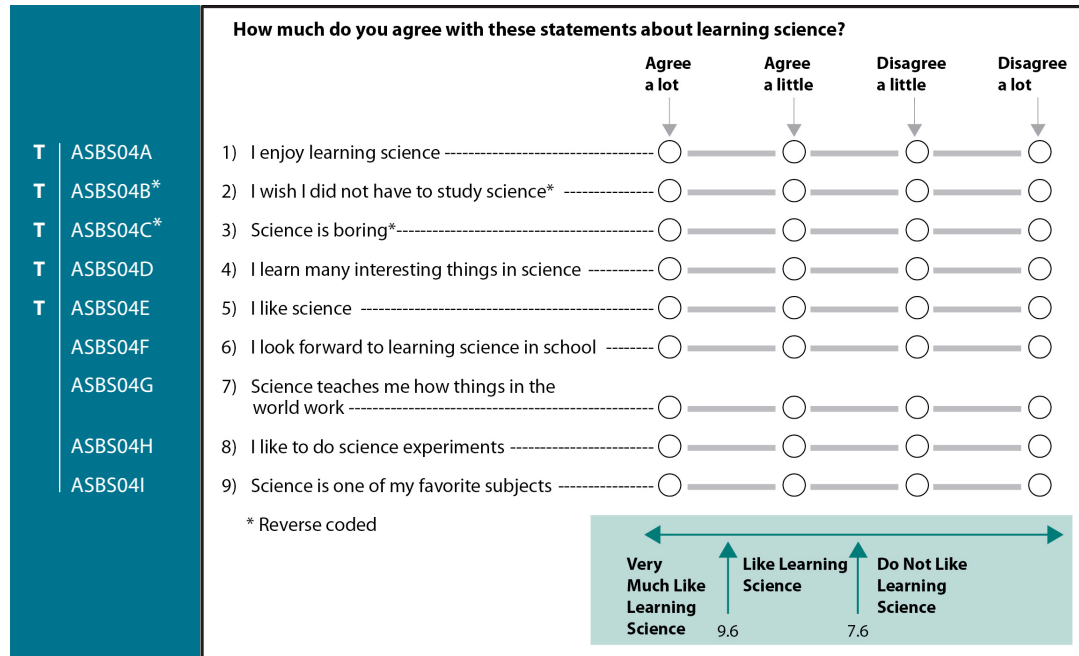


# Students Like Learning Science Scale, Fourth Grade

The Students Like Learning Science (SLS) scale was created based on students' degree of agreement with the nine statements described below.

## Items in the TIMSS 2015 Students Like Learning Science Scale, Fourth Grade



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.

**Item Parameters for the TIMSS 2015 Students Like Learning Science Scale, Fourth Grade**

Item	delta	tau_1	tau_2	tau_3	Infit
ASBS04A	-0.03177	-0.48837	-0.55624	1.04461	0.81
ASBS04B*	0.54508	-0.31578	-0.16722	0.48300	1.53
ASBS04C*	0.36011	-0.48672	-0.06029	0.54701	1.28
ASBS04D	-0.49710	-0.28238	-0.48794	0.77032	0.95
ASBS04E	-0.00762	-0.45509	-0.40061	0.85570	0.65
ASBS04F	0.32089	-0.78932	-0.22311	1.01243	0.85
ASBS04G	-0.63912	-0.42807	-0.58269	1.01076	1.21
ASBS04H	-0.63548	-0.16495	-0.39717	0.56212	1.38
ASBS04I	0.58501	-0.73823	-0.18404	0.92227	0.93

\*Reverse coded

**Scale Transformation Constants for the TIMSS 2015 Students Like Learning Science Scale, Fourth Grade**

Scale Transformation Constants	
A = 7.692952	Transformed Scale Score = 7.692952 + 1.31277 • Logit Scale Score
B = 1.31277	

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



**Equivalence Table of Raw and Transformed Scale Scores for the TIMSS  
2015 Students Like Learning Science Scale, Fourth Grade**

Raw Score	Transformed Scale Score	Cutpoint
0	3.23946	
1	4.51118	
2	5.09266	
3	5.48363	
4	5.78856	
5	6.04394	
6	6.26730	
7	6.47373	
8	6.66589	
9	6.84816	
10	7.02381	
11	7.19528	
12	7.36446	
13	7.53286	7.6
14	7.70219	
15	7.87285	
16	8.04737	
17	8.22734	
18	8.41513	
19	8.61378	
20	8.82516	
21	9.05834	
22	9.32098	
23	9.62700	9.6
24	9.99920	
25	10.48630	
26	11.20666	
27	12.70534	

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 Students Like Learning Science Scale, Fourth Grade**

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Component Loadings for Each Item								
			ASBS04A	ASBS04B*	ASBS04C*	ASBS04D	ASBS04E	ASBS04F	ASBS04G	ASBS04H	ASBS04I
Australia	0.92	62	0.86	0.69	0.74	0.79	0.90	0.90	0.66	0.62	0.84
Bahrain	0.86	52	0.76	0.43	0.47	0.79	0.87	0.81	0.74	0.70	0.81
Belgium (Flemish)	0.91	59	0.88	0.78	0.83	0.70	0.91	0.83	0.58	0.46	0.84
Bulgaria	0.86	52	0.81	0.43	0.56	0.78	0.88	0.77	0.73	0.59	0.80
Canada	0.91	59	0.87	0.64	0.74	0.77	0.91	0.88	0.60	0.57	0.84
Chile	0.86	51	0.81	0.40	0.56	0.76	0.89	0.83	0.63	0.58	0.82
Chinese Taipei	0.92	62	0.87	0.66	0.60	0.81	0.91	0.87	0.75	0.72	0.85
Croatia	0.90	58	0.86	0.67	0.78	0.78	0.90	0.89	0.56	0.42	0.84
Cyprus	0.91	59	0.86	0.70	0.71	0.78	0.91	0.87	0.64	0.48	0.86
Czech Republic	0.92	61	0.88	0.63	0.77	0.71	0.92	0.90	0.63	0.58	0.88
Denmark	0.93	65	0.87	0.74	0.81	0.84	0.91	0.90	0.67	0.59	0.84
England	0.93	64	0.88	0.74	0.79	0.75	0.92	0.90	0.65	0.64	0.85
Finland	0.93	63	0.86	0.73	0.82	0.80	0.91	0.85	0.67	0.66	0.82
France	0.92	61	0.88	0.70	0.78	0.78	0.91	0.86	0.62	0.60	0.82
Georgia	0.82	45	0.77	0.36	0.37	0.75	0.85	0.65	0.71	0.72	0.66
Germany	0.91	60	0.82	0.77	0.76	0.77	0.90	0.90	0.65	0.46	0.84
Hong Kong SAR	0.92	61	0.84	0.58	0.65	0.79	0.91	0.88	0.75	0.71	0.85
Hungary	0.89	54	0.87	0.59	0.71	0.72	0.90	0.88	0.53	0.42	0.83
Indonesia	0.74	37	0.66	0.29	0.36	0.68	0.78	0.65	0.58	0.61	0.71
Iran, Islamic Rep. of	0.79	43	0.74	0.39	0.41	0.68	0.82	0.66	0.62	0.67	0.78
Ireland	0.91	59	0.86	0.65	0.74	0.73	0.90	0.89	0.64	0.63	0.82
Italy	0.85	47	0.84	0.67	0.70	0.74	0.86	0.56	0.41	0.46	0.81
Japan	0.92	63	0.87	0.65	0.69	0.79	0.91	0.90	0.70	0.72	0.84
Jordan	0.82	48	0.70	0.34	0.37	0.78	0.85	0.79	0.75	0.74	0.75
Kazakhstan	0.83	46	0.68	0.34	0.62	0.68	0.80	0.77	0.69	0.64	0.76
Korea, Rep. of	0.93	63	0.86	0.71	0.79	0.81	0.90	0.86	0.69	0.65	0.83
Kuwait	0.82	46	0.69	0.38	0.46	0.72	0.84	0.77	0.67	0.69	0.72
Lithuania	0.89	55	0.82	0.65	0.65	0.76	0.87	0.83	0.65	0.62	0.77
Morocco	0.77	41	0.61	0.38	0.42	0.69	0.78	0.73	0.66	0.69	0.65
Netherlands	0.90	57	0.84	0.65	0.78	0.74	0.90	0.86	0.58	0.54	0.81
New Zealand	0.91	59	0.84	0.63	0.66	0.77	0.90	0.87	0.69	0.70	0.82
Northern Ireland	0.90	57	0.85	0.65	0.72	0.72	0.89	0.87	0.62	0.59	0.80
Norway (5)	0.91	59	0.87	0.67	0.79	0.77	0.91	0.88	0.61	0.48	0.82
Oman	0.75	41	0.67	0.35	0.41	0.62	0.78	0.65	0.69	0.70	0.73
Poland	0.90	57	0.85	0.63	0.66	0.81	0.89	0.71	0.72	0.65	0.82
Portugal	0.87	52	0.82	0.62	0.64	0.72	0.88	0.81	0.59	0.59	0.77
Qatar	0.86	52	0.74	0.44	0.48	0.80	0.87	0.81	0.75	0.70	0.79
Russian Federation	0.88	53	0.83	0.57	0.72	0.71	0.86	0.83	0.62	0.49	0.80
Saudi Arabia	0.85	51	0.73	0.33	0.39	0.79	0.87	0.84	0.73	0.74	0.80
Serbia	0.88	54	0.85	0.47	0.64	0.75	0.89	0.88	0.58	0.57	0.83
Singapore	0.92	60	0.86	0.72	0.73	0.78	0.90	0.87	0.66	0.58	0.85
Slovak Republic	0.90	57	0.86	0.65	0.73	0.64	0.90	0.88	0.62	0.58	0.84
Slovenia	0.91	59	0.85	0.66	0.76	0.80	0.91	0.90	0.57	0.48	0.82
South Africa (5)	-	-	-	-	-	-	-	-	-	-	-
Spain	0.88	53	0.83	0.58	0.72	0.73	0.89	0.86	0.52	0.37	0.84
Sweden	0.92	62	0.86	0.70	0.81	0.80	0.91	0.88	0.66	0.61	0.82
Turkey	0.76	38	0.70	0.53	0.58	0.45	0.78	0.68	0.49	0.53	0.73
United Arab Emirates	0.88	53	0.77	0.51	0.63	0.78	0.86	0.80	0.70	0.65	0.80
United States	0.91	60	0.87	0.63	0.71	0.78	0.91	0.88	0.67	0.61	0.84
<b>Benchmarking Participants</b>											
Buenos Aires, Argentina	0.87	52	0.84	0.48	0.56	0.75	0.90	0.86	0.60	0.51	0.84
Ontario, Canada	0.91	59	0.87	0.66	0.75	0.76	0.91	0.88	0.63	0.53	0.85
Quebec, Canada	0.90	58	0.88	0.60	0.76	0.78	0.92	0.90	0.50	0.57	0.83
Norway (4)	0.91	59	0.87	0.64	0.77	0.77	0.91	0.90	0.57	0.57	0.82
Abu Dhabi, UAE	0.88	52	0.74	0.50	0.60	0.79	0.86	0.81	0.71	0.64	0.78
Dubai, UAE	0.88	54	0.82	0.58	0.70	0.74	0.86	0.79	0.66	0.57	0.82
Florida, US	0.92	60	0.88	0.65	0.72	0.79	0.92	0.88	0.66	0.59	0.84

\*Reverse coded

A dash (-) indicates comparable data not available.

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

**Relationship Between the TIMSS 2015 Students Like Learning Science Scale, Fourth Grade, and TIMSS 2015 Science Achievement**

Country	Pearson's Correlation with Science Achievement		Variance in Science Achievement Accounted for by Difference Between Regions of the Scale ( $\eta^2$ )
	(r)	( $r^2$ )	
Australia	0.10	0.01	0.01
Bahrain	0.38	0.14	0.13
Belgium (Flemish)	0.12	0.02	0.02
Bulgaria	0.28	0.08	0.08
Canada	0.11	0.01	0.01
Chile	0.14	0.02	0.02
Chinese Taipei	0.16	0.03	0.02
Croatia	0.10	0.01	0.01
Cyprus	0.10	0.01	0.01
Czech Republic	0.06	0.00	0.00
Denmark	0.07	0.00	0.01
England	0.10	0.01	0.01
Finland	0.08	0.01	0.01
France	0.11	0.01	0.01
Georgia	0.20	0.04	0.04
Germany	0.09	0.01	0.01
Hong Kong SAR	0.22	0.05	0.04
Hungary	0.15	0.02	0.02
Indonesia	0.29	0.09	0.10
Iran, Islamic Rep. of	0.28	0.08	0.07
Ireland	0.19	0.04	0.03
Italy	0.10	0.01	0.01
Japan	0.17	0.03	0.02
Jordan	-	-	-
Kazakhstan	0.16	0.03	0.02
Korea, Rep. of	0.26	0.07	0.05
Kuwait	0.27	0.03	0.06
Lithuania	0.18	0.11	0.03
Morocco	0.34	0.02	0.10
Netherlands	0.15	0.01	0.02
New Zealand	0.12	0.02	0.02
Northern Ireland	0.14	0.01	0.01
Norway (5)	0.10	0.12	0.01
Oman	0.34	0.00	0.10
Poland	0.07	0.02	0.01
Portugal	0.14	0.12	0.02
Qatar	0.34	0.00	0.11
Russian Federation	0.06	0.08	0.00
Saudi Arabia	0.28	0.00	0.09
Serbia	0.02	0.02	0.00
Singapore	0.14	0.00	0.02
Slovak Republic	0.06	0.02	0.00
Slovenia	0.13	0.02	0.01
South Africa (5)	-	-	-
Spain	0.13	0.02	0.02
Sweden	-0.02	0.00	0.00
Turkey	0.34	0.12	0.11
United Arab Emirates	0.35	0.12	0.11
United States	0.13	0.02	0.02
<b>International Median</b>	<b>0.14</b>	<b>0.02</b>	<b>0.02</b>
<b>Benchmarking Participants</b>			
Buenos Aires, Argentina	0.08	0.01	0.01
Ontario, Canada	0.11	0.01	0.01
Quebec, Canada	0.12	0.01	0.01
Norway (4)	0.11	0.01	0.01
Abu Dhabi, UAE	0.35	0.13	0.13
Dubai, UAE	0.27	0.07	0.06
Florida, US	0.16	0.02	0.02

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

A dash (-) indicates comparable data not available.