

# Students Like Learning Science Scale, Eighth 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, Eighth Grade

		How much do you agree with these statements about learning science?				
		Agree a lot	Agree a little	Disagree a little	Disagree a lot	
T	BSBS21A	1) I enjoy learning science -----○	○	○	○	○
T	BSBS21B *	2) I wish I did not have to study science* -----○	○	○	○	○
T	BSBS21C *	3) Science is boring*-----○	○	○	○	○
T	BSBS21D	4) I learn many interesting things in science -----○	○	○	○	○
T	BSBS21E	5) I like science -----○	○	○	○	○
	BSBS21F	6) I look forward to learning science in school -----○	○	○	○	○
	BSBS21G	7) Science teaches me how things in the world work -----○	○	○	○	○
	BSBS21H	8) I like to conduct science experiments -----○	○	○	○	○
	BSBS21I	9) Science is one of my favorite subjects -----○	○	○	○	○

\* Reverse coded

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, Eighth Grade**

Item	delta	tau_1	tau_2	tau_3	Infit
BSBS21A	-0.13142	-1.01695	-0.52680	1.54375	0.76
BSBS21B*	0.56759	-1.19007	-0.00233	1.19240	1.65
BSBS21C*	0.47515	-1.36232	0.00944	1.35288	1.42
BSBS21D	-0.52383	-0.93744	-0.51695	1.45439	0.90
BSBS21E	0.01158	-1.06294	-0.35802	1.42096	0.65
BSBS21F	0.41917	-1.45338	-0.07468	1.52806	0.83
BSBS21G	-0.64772	-0.96459	-0.57542	1.54001	1.10
BSBS21H	-0.67455	-0.78921	-0.43697	1.22618	1.33
BSBS21I	0.50403	-1.16503	-0.06851	1.23354	0.81

\*Reverse coded

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

Scale Transformation Constants	
A = 8.489044	Transformed Scale Score = 8.489044 + 1.163944 • Logit Scale Score
B = 1.163944	

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, Eighth Grade**

Raw Score	Transformed Scale Score	Cutpoint
0	3.77142	
1	5.02704	
2	5.62048	
3	6.02909	
4	6.34989	
5	6.62088	
6	6.86531	
7	7.08748	
8	7.29855	
9	7.50187	
10	7.70183	
11	7.89809	
12	8.09428	
13	8.29197	8.3
14	8.49247	
15	8.69676	
16	8.90626	
17	9.12229	
18	9.34659	
19	9.58043	
20	9.82838	
21	10.09453	
22	10.38590	
23	10.71393	10.7
24	11.09720	
25	11.57741	
26	12.25898	
27	13.62135	

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, Eighth Grade**

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Component Loadings for Each Item								
			BS8S21A	BS8S21B*	BS8S21C*	BS8S21D	BS8S21E	BS8S21F	BS8S21G	BS8S21H	BS8S21I
Australia	0.93	65	0.89	0.71	0.75	0.81	0.92	0.91	0.73	0.61	0.87
Bahrain	0.89	56	0.83	0.37	0.45	0.83	0.89	0.86	0.78	0.68	0.87
Botswana (9)	0.83	44	0.72	0.50	0.61	0.65	0.79	0.71	0.59	0.58	0.75
Canada	0.92	61	0.88	0.65	0.74	0.79	0.91	0.88	0.68	0.59	0.87
Chile	0.89	56	0.86	0.45	0.61	0.80	0.89	0.82	0.71	0.66	0.84
Chinese Taipei	0.93	64	0.89	0.71	0.73	0.83	0.91	0.85	0.73	0.64	0.88
Egypt	0.81	45	0.69	0.25	0.35	0.73	0.82	0.80	0.71	0.70	0.77
England	0.93	65	0.89	0.77	0.78	0.80	0.92	0.90	0.71	0.57	0.87
Georgia	-	-	-	-	-	-	-	-	-	-	-
Hong Kong SAR	0.92	64	0.87	0.61	0.64	0.85	0.91	0.87	0.78	0.72	0.88
Hungary	-	-	-	-	-	-	-	-	-	-	-
Iran, Islamic Rep. of	0.89	54	0.83	0.59	0.59	0.74	0.87	0.80	0.67	0.63	0.85
Ireland	0.93	64	0.90	0.69	0.74	0.81	0.92	0.90	0.72	0.61	0.87
Israel	0.92	62	0.88	0.62	0.67	0.84	0.91	0.82	0.73	0.65	0.88
Italy	0.92	60	0.87	0.78	0.76	0.78	0.90	0.83	0.57	0.54	0.85
Japan	0.92	62	0.89	0.66	0.72	0.82	0.90	0.87	0.65	0.63	0.88
Jordan	0.86	54	0.78	0.33	0.42	0.81	0.88	0.86	0.74	0.71	0.85
Kazakhstan	-	-	-	-	-	-	-	-	-	-	-
Korea, Rep. of	0.93	65	0.89	0.71	0.76	0.82	0.91	0.83	0.72	0.66	0.89
Kuwait	0.89	56	0.83	0.49	0.62	0.79	0.89	0.85	0.66	0.62	0.86
Lebanon	-	-	-	-	-	-	-	-	-	-	-
Lithuania	-	-	-	-	-	-	-	-	-	-	-
Malaysia	0.90	56	0.83	0.55	0.61	0.80	0.87	0.74	0.77	0.69	0.82
Malta	-	-	-	-	-	-	-	-	-	-	-
Morocco	-	-	-	-	-	-	-	-	-	-	-
New Zealand	0.92	62	0.88	0.71	0.70	0.77	0.91	0.89	0.73	0.59	0.87
Norway (9)	0.92	63	0.88	0.76	0.79	0.81	0.91	0.88	0.66	0.50	0.84
Oman	0.84	49	0.75	0.31	0.46	0.76	0.85	0.78	0.74	0.68	0.81
Qatar	0.90	59	0.85	0.41	0.44	0.85	0.91	0.88	0.79	0.71	0.87
Russian Federation	-	-	-	-	-	-	-	-	-	-	-
Saudi Arabia	0.89	58	0.84	0.32	0.44	0.84	0.91	0.89	0.73	0.75	0.88
Singapore	0.92	63	0.87	0.78	0.78	0.77	0.91	0.87	0.70	0.54	0.87
Slovenia	-	-	-	-	-	-	-	-	-	-	-
South Africa (9)	0.87	51	0.79	0.49	0.58	0.67	0.86	0.80	0.64	0.68	0.81
Sweden	-	-	-	-	-	-	-	-	-	-	-
Thailand	0.86	50	0.75	0.45	0.52	0.71	0.83	0.76	0.72	0.68	0.83
Turkey	0.88	52	0.81	0.54	0.66	0.63	0.86	0.80	0.68	0.62	0.85
United Arab Emirates	0.91	60	0.84	0.55	0.63	0.82	0.89	0.86	0.76	0.65	0.86
United States	0.92	63	0.88	0.62	0.69	0.80	0.91	0.89	0.73	0.66	0.87
<b>Benchmarking Participants</b>											
Buenos Aires, Argentina	0.88	52	0.82	0.44	0.50	0.80	0.89	0.82	0.67	0.61	0.82
Ontario, Canada	0.92	63	0.88	0.67	0.75	0.79	0.91	0.89	0.70	0.61	0.88
Quebec, Canada	0.91	60	0.87	0.60	0.78	0.79	0.91	0.87	0.62	0.57	0.85
Norway (8)	0.93	63	0.88	0.75	0.80	0.83	0.92	0.89	0.67	0.48	0.85
Abu Dhabi, UAE	0.91	59	0.83	0.47	0.55	0.83	0.90	0.87	0.77	0.68	0.86
Dubai, UAE	0.92	61	0.86	0.67	0.74	0.79	0.89	0.85	0.72	0.56	0.87
Florida, US	0.92	61	0.88	0.56	0.64	0.82	0.91	0.88	0.76	0.65	0.86

\*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, Eighth 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	0.34	0.12	0.10
Bahrain	0.28	0.08	0.07
Botswana (9)	0.41	0.17	0.15
Canada	0.23	0.05	0.05
Chile	0.16	0.03	0.03
Chinese Taipei	0.38	0.14	0.12
Egypt	0.37	0.14	0.13
England	0.31	0.10	0.09
Georgia	-	-	-
Hong Kong SAR	0.32	0.10	0.09
Hungary	-	-	-
Iran, Islamic Rep. of	0.18	0.03	0.04
Ireland	0.39	0.15	0.13
Israel	0.20	0.04	0.03
Italy	0.19	0.03	0.03
Japan	0.30	0.09	0.08
Jordan	0.26	0.07	0.06
Kazakhstan	-	-	-
Korea, Rep. of	0.40	0.16	0.15
Kuwait	0.23	0.06	0.04
Lebanon	-	-	-
Lithuania	-	-	-
Malaysia	0.35	0.12	0.11
Malta	-	-	-
Morocco	-	-	-
New Zealand	0.27	0.07	0.06
Norway (9)	0.28	0.08	0.07
Oman	0.27	0.07	0.06
Qatar	0.36	0.13	0.12
Russian Federation	-	-	-
Saudi Arabia	0.27	0.07	0.07
Singapore	0.27	0.07	0.07
Slovenia	-	-	-
South Africa (9)	0.19	0.04	0.03
Sweden	-	-	-
Thailand	0.22	0.05	0.04
Turkey	0.22	0.05	0.05
United Arab Emirates	0.30	0.09	0.09
United States	0.26	0.07	0.06
<b>International Median</b>	<b>0.27</b>	<b>0.07</b>	<b>0.07</b>
<b>Benchmarking Participants</b>			
Buenos Aires, Argentina	0.10	0.01	0.01
Ontario, Canada	0.23	0.06	0.05
Quebec, Canada	0.25	0.06	0.05
Norway (8)	0.21	0.04	0.03
Abu Dhabi, UAE	0.29	0.08	0.08
Dubai, UAE	0.28	0.08	0.08
Florida, US	0.23	0.05	0.05

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

A dash (-) indicates comparable data not available.