

Students Like Learning Earth Science Scale, Eighth Grade

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

Items in the TIMSS 2015 Students Like Learning Earth Science Scale, Eighth Grade

		How much do you agree with these statements about learning earth science?				
		Agree a lot	Agree a little	Disagree a little	Disagree a lot	
T	BSBE26A	1) I enjoy learning earth science -----○	○	○	○	○
T	BSBE26B *	2) I wish I did not have to study earth science* -----○	○	○	○	○
T	BSBE26C *	3) Earth science is boring* -----○	○	○	○	○
T	BSBE26D	4) I learn many interesting things in earth science ---○	○	○	○	○
T	BSBE26E	5) I like earth science -----○	○	○	○	○
	BSBE26F	6) I look forward to learning earth science in school -----○	○	○	○	○
	BSBE26G	7) Earth science teaches me how things in the world work -----○	○	○	○	○
	BSBE26H	8) I like to conduct earth science experiments -----○	○	○	○	○
	BSBE26I	9) Earth 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 Earth Science Scale, Eighth Grade

Item	delta	tau_1	tau_2	tau_3	Infit
BSBE26A	-0.23011	-1.44006	-0.28759	1.72765	0.77
BSBE26B*	0.38072	-1.07357	-0.31732	1.39089	1.61
BSBE26C*	0.15618	-1.23747	-0.35190	1.58937	1.40
BSBE26D	-0.70905	-1.24739	-0.55289	1.80028	0.86
BSBE26E	-0.12440	-1.34236	-0.29463	1.63699	0.65
BSBE26F	0.43991	-1.68433	0.08108	1.60325	0.83
BSBE26G	-0.82465	-1.18029	-0.67026	1.85055	1.09
BSBE26H	0.25967	-1.34111	-0.13343	1.47454	1.15
BSBE26I	0.65173	-1.39181	0.01682	1.37499	0.85

*Reverse coded

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

Scale Transformation Constants

A = 8.692574

B = 1.090836

Transformed Scale Score = 8.692574 + 1.090836 • Logit Scale Score

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 Earth Science Scale, Eighth Grade**

Raw Score	Transformed Scale Score	Cutpoint
0	3.96247	
1	5.17563	
2	5.76426	
3	6.17484	
4	6.50371	
5	6.78595	
6	7.03864	
7	7.27438	
8	7.49669	
9	7.70979	
10	7.91683	
11	8.12025	
12	8.32207	
13	8.52407	8.6
14	8.72785	
15	8.93490	
16	9.14666	
17	9.36457	
18	9.59024	
19	9.82482	
20	10.07207	
21	10.33557	
22	10.62160	
23	10.94063	10.9
24	11.31149	
25	11.76867	
26	12.41427	
27	13.69652	

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 Earth Science Scale, Eighth Grade

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Component Loadings for Each Item									
			BSBE26A	BSBE26B*	BSBE26C*	BSBE26D	BSBE26E	BSBE26F	BSBE26G	BSBE26H	BSBE26I	
Georgia	0.83	46	0.77	0.26	0.27	0.73	0.85	0.76	0.70	0.71	0.76	
Hungary	0.92	61	0.87	0.63	0.71	0.81	0.90	0.86	0.67	0.71	0.84	
Kazakhstan	0.88	54	0.80	0.37	0.47	0.81	0.88	0.81	0.75	0.73	0.83	
Lebanon	-	-	-	-	-	-	-	-	-	-	-	
Lithuania	0.91	60	0.87	0.64	0.68	0.77	0.90	0.82	0.70	0.70	0.84	
Malta	0.93	65	0.88	0.64	0.71	0.82	0.92	0.90	0.71	0.75	0.85	
Morocco	0.85	51	0.76	0.27	0.37	0.78	0.86	0.84	0.72	0.76	0.79	
Russian Federation	0.89	56	0.84	0.38	0.62	0.80	0.89	0.83	0.70	0.70	0.83	
Slovenia	0.93	64	0.86	0.66	0.73	0.84	0.92	0.90	0.68	0.71	0.86	
Sweden	-	-	-	-	-	-	-	-	-	-	-	

*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 Earth 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 (η^2)
	(r)	(r ²)	
Georgia	0.18	0.03	0.03
Hungary	0.02	0.00	0.00
Kazakhstan	0.09	0.01	0.01
Lebanon	-	-	-
Lithuania	0.13	0.02	0.02
Malta	0.16	0.03	0.02
Morocco	0.20	0.04	0.04
Russian Federation	0.04	0.00	0.00
Slovenia	0.07	0.01	0.00
Sweden	-	-	-
International Median	0.11	0.01	0.01

A dash (-) indicates comparable data not available.

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

