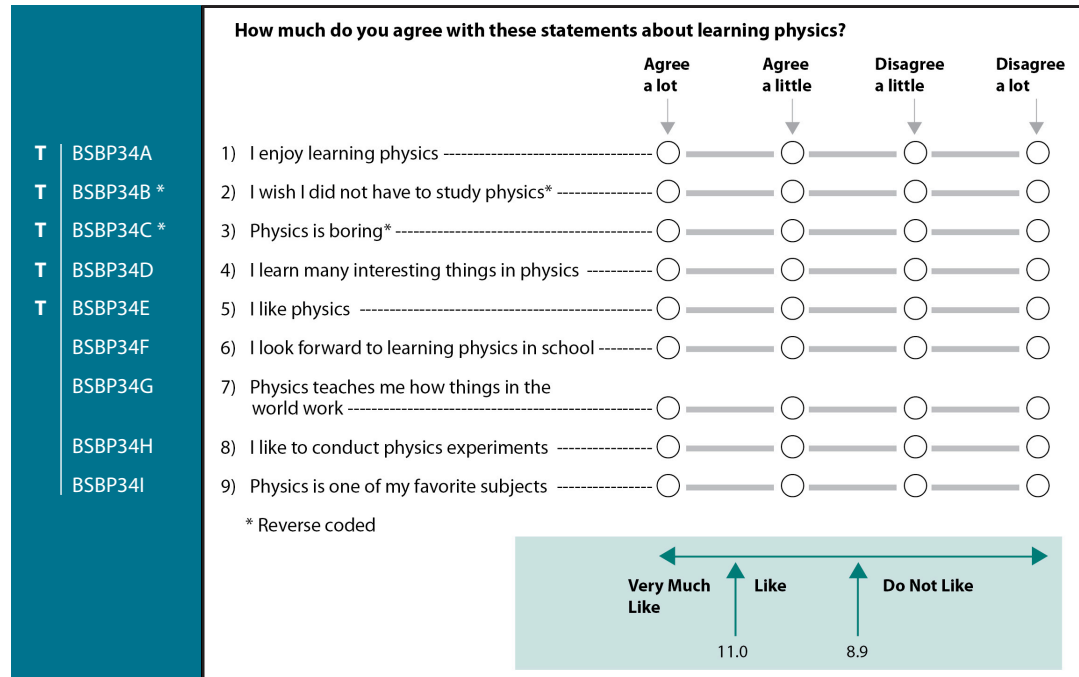


Students Like Learning Physics Scale, Eighth Grade

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

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

Item	delta	tau_1	tau_2	tau_3	Infit
BSBP34A	-0.07404	-1.30547	-0.15488	1.46035	0.78
BSBP34B*	0.45993	-1.00740	-0.17183	1.17923	1.73
BSBP34C*	0.26168	-1.15919	-0.28413	1.44332	1.54
BSBP34D	-0.54501	-1.21552	-0.43870	1.65422	0.83
BSBP34E	0.07244	-1.28315	-0.11316	1.39631	0.62
BSBP34F	0.42153	-1.49755	0.11984	1.37771	0.82
BSBP34G	-0.62535	-1.08281	-0.62965	1.71246	1.12
BSBP34H	-0.57460	-0.91537	-0.50031	1.41568	1.10
BSBP34I	0.60342	-1.27446	0.09125	1.18321	0.80

*Reverse coded

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

Scale Transformation Constants	
A = 9.037567	Transformed Scale Score = 9.037567 + 1.051045 • Logit Scale Score
B = 1.051045	

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 Physics Scale, Eighth Grade**

Raw Score	Transformed Scale Score	Cutpoint
0	4.64895	
1	5.80878	
2	6.36558	
3	6.74953	
4	7.05428	
5	7.31372	
6	7.54411	
7	7.75905	
8	7.96155	
9	8.15567	
10	8.34431	
11	8.52962	
12	8.71320	
13	8.89640	8.9
14	9.08040	
15	9.26639	
16	9.45564	
17	9.64960	
18	9.85004	
19	10.05832	
20	10.27840	
21	10.51415	
22	10.77194	
23	11.06214	11.0
24	11.40300	
25	11.82828	
26	12.43593	
27	13.65813	

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 Physics Scale, Eighth Grade

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Component Loadings for Each Item									
			BSBP34A	BSBP34B*	BSBP34C*	BSBP34D	BSBP34E	BSBP34F	BSBP34G	BSBP34H	BSBP34I	
Georgia	0.87	52	0.83	0.35	0.38	0.76	0.88	0.82	0.68	0.71	0.83	
Hungary	0.92	62	0.88	0.62	0.68	0.82	0.91	0.85	0.69	0.72	0.85	
Kazakhstan	0.89	58	0.82	0.40	0.50	0.83	0.89	0.83	0.80	0.79	0.84	
Lebanon	0.86	54	0.81	0.19	0.19	0.82	0.90	0.82	0.78	0.80	0.85	
Lithuania	0.92	61	0.88	0.60	0.64	0.81	0.91	0.84	0.73	0.73	0.85	
Malta	0.93	65	0.89	0.66	0.70	0.83	0.92	0.90	0.75	0.70	0.88	
Morocco	0.85	52	0.77	0.22	0.31	0.82	0.87	0.86	0.76	0.79	0.80	
Russian Federation	0.90	57	0.85	0.41	0.59	0.81	0.89	0.83	0.73	0.72	0.85	
Slovenia	0.93	64	0.86	0.64	0.72	0.86	0.92	0.90	0.66	0.71	0.86	
Sweden	0.93	65	0.88	0.68	0.77	0.87	0.92	0.89	0.71	0.70	0.83	

*Reverse coded

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

Relationship Between the TIMSS 2015 Students Like Learning Physics 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	0.14	0.02	0.03
Hungary	0.14	0.02	0.03
Kazakhstan	0.16	0.03	0.03
Lebanon	0.23	0.05	0.07
Lithuania	0.22	0.05	0.05
Malta	0.36	0.13	0.11
Morocco	0.23	0.05	0.05
Russian Federation	0.19	0.04	0.03
Slovenia	0.18	0.03	0.03
Sweden	0.22	0.05	0.04
International Median	0.21	0.04	0.03

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

