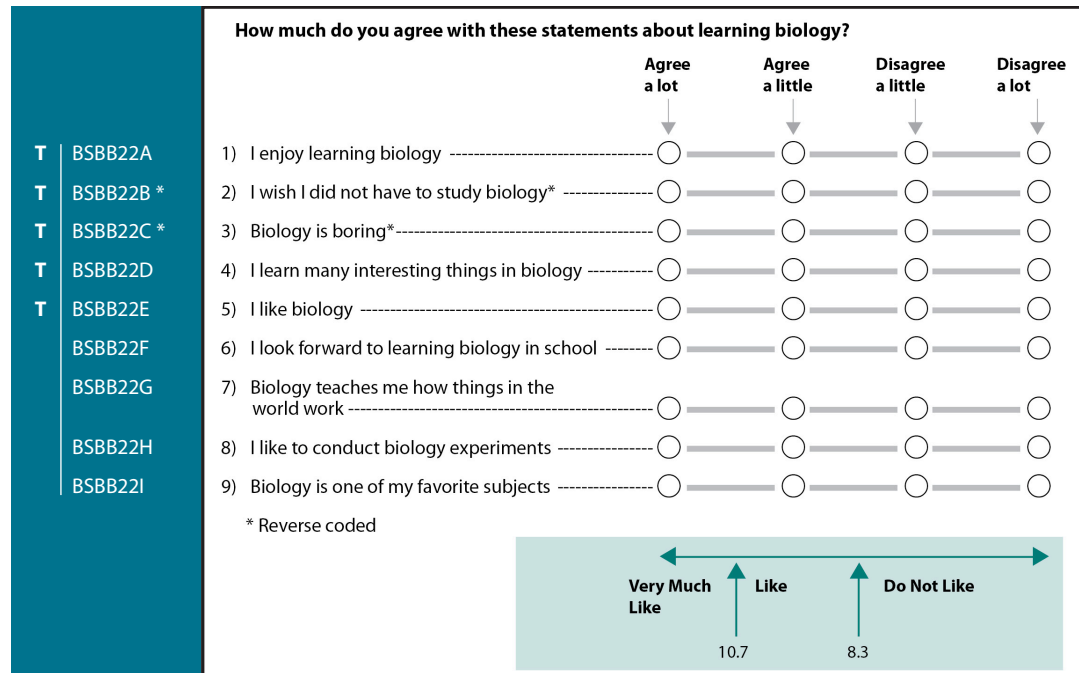


Students Like Learning Biology Scale, Eighth Grade

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

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

Item	delta	tau_1	tau_2	tau_3	Infit
BSBB22A	-0.21561	-1.36738	-0.38682	1.75420	0.78
BSBB22B*	0.48941	-0.97790	-0.35507	1.33297	1.53
BSBB22C*	0.32744	-1.12315	-0.37329	1.49644	1.36
BSBB22D	-0.70652	-1.04264	-0.60801	1.65065	0.86
BSBB22E	-0.08498	-1.26709	-0.29413	1.56122	0.63
BSBB22F	0.47630	-1.62094	-0.00453	1.62547	0.85
BSBB22G	-0.71956	-1.08900	-0.74172	1.83072	1.15
BSBB22H	-0.28187	-1.07022	-0.43544	1.50566	1.27
BSBB22I	0.71539	-1.35579	0.06572	1.29007	0.87

*Reverse coded

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

Scale Transformation Constants	
A = 8.424458	Transformed Scale Score = 8.424458 + 1.150254 • Logit Scale Score
B = 1.150254	

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 Biology Scale, Eighth Grade**

Raw Score	Transformed Scale Score	Cutpoint
0	3.58422	
1	4.83770	
2	5.43659	
3	5.85367	
4	6.18434	
5	6.46579	
6	6.72147	
7	6.95733	
8	7.17826	
9	7.39267	
10	7.60305	
11	7.80935	
12	8.01503	
13	8.22181	8.3
14	8.43143	
15	8.64503	
16	8.86456	
17	9.09141	
18	9.32733	
19	9.57355	
20	9.83403	
21	10.11239	
22	10.41516	
23	10.75327	10.7
24	11.14479	
25	11.63080	
26	12.31447	
27	13.66963	

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 Biology Scale, Eighth Grade

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Component Loadings for Each Item								
			BS8B22A	BS8B22B*	BS8B22C*	BS8B22D	BS8B22E	BS8B22F	BS8B22G	BS8B22H	BS8B22I
Georgia	0.85	47	0.81	0.43	0.45	0.67	0.87	0.77	0.60	0.62	0.79
Hungary	0.91	60	0.87	0.66	0.75	0.79	0.91	0.84	0.63	0.63	0.84
Kazakhstan	0.87	52	0.80	0.36	0.49	0.80	0.87	0.81	0.66	0.73	0.83
Lebanon	0.84	49	0.75	0.29	0.33	0.74	0.87	0.78	0.68	0.74	0.83
Lithuania	0.92	61	0.86	0.66	0.71	0.80	0.91	0.84	0.71	0.65	0.83
Malta	0.92	63	0.87	0.75	0.76	0.78	0.91	0.89	0.67	0.58	0.89
Morocco	0.85	50	0.75	0.35	0.46	0.77	0.85	0.83	0.68	0.71	0.79
Russian Federation	0.89	55	0.83	0.49	0.69	0.77	0.88	0.81	0.67	0.64	0.84
Slovenia	0.93	63	0.87	0.68	0.76	0.84	0.91	0.89	0.65	0.65	0.85
Sweden	0.92	62	0.87	0.70	0.77	0.83	0.91	0.89	0.66	0.58	0.80

*Reverse coded

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

Relationship Between the TIMSS 2015 Students Like Learning Biology 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	0.16	0.03	0.03
Hungary	0.09	0.01	0.01
Kazakhstan	0.13	0.02	0.01
Lebanon	0.30	0.09	0.09
Lithuania	0.06	0.00	0.00
Malta	0.31	0.10	0.10
Morocco	0.22	0.05	0.04
Russian Federation	0.05	0.00	0.00
Slovenia	0.05	0.00	0.00
Sweden	0.12	0.01	0.01
International Median	0.13	0.02	0.01

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