

# Students Like Learning Chemistry Scale, Eighth Grade

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

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

		How much do you agree with these statements about learning chemistry?			
		Agree a lot	Agree a little	Disagree a little	Disagree a lot
T	BSBC30A	1) I enjoy learning chemistry -----○-----○-----○-----○			
T	BSBC30B *	2) I wish I did not have to study chemistry* -----○-----○-----○-----○			
T	BSBC30C *	3) Chemistry is boring* -----○-----○-----○-----○			
T	BSBC30D	4) I learn many interesting things in chemistry -----○-----○-----○-----○			
T	BSBC30E	5) I like chemistry -----○-----○-----○-----○			
	BSBC30F	6) I look forward to learning chemistry in school -----○-----○-----○-----○			
	BSBC30G	7) Chemistry teaches me how things in the world work -----○-----○-----○-----○			
	BSBC30H	8) I like to conduct chemistry experiments -----○-----○-----○-----○			
	BSBC30I	9) Chemistry is one of my favorite subjects -----○-----○-----○-----○			

\* Reverse coded

Very Much Like      Like      Do Not Like

11.1      9.0

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 Chemistry Scale, Eighth Grade**

Item	delta	tau_1	tau_2	tau_3	Infit
BSBC30A	-0.02523	-1.23109	-0.19180	1.42289	0.78
BSBC30B*	0.48146	-0.92656	-0.23159	1.15815	1.68
BSBC30C*	0.25060	-1.07638	-0.32509	1.40147	1.54
BSBC30D	-0.53330	-1.12674	-0.47727	1.60401	0.82
BSBC30E	0.04614	-1.23609	-0.14551	1.38160	0.62
BSBC30F	0.44759	-1.46092	0.09506	1.36586	0.79
BSBC30G	-0.33281	-1.19842	-0.43524	1.63366	1.09
BSBC30H	-0.88655	-0.62539	-0.71378	1.33917	1.28
BSBC30I	0.55210	-1.26474	0.09353	1.17121	0.80

\*Reverse coded

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

Scale Transformation Constants	
A = 9.10346	Transformed Scale Score = 9.10346 + 1.077212 • Logit Scale Score
B = 1.077212	

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 Chemistry Scale, Eighth Grade**

Raw Score	Transformed Scale Score	Cutpoint
0	4.69247	
1	5.86077	
2	6.41657	
3	6.79900	
4	7.10281	
5	7.36210	
6	7.59312	
7	7.80909	
8	8.01275	
9	8.20800	
10	8.39762	
11	8.58367	
12	8.76781	
13	8.95150	9.0
14	9.13676	
15	9.32284	
16	9.51333	
17	9.70911	
18	9.91208	
19	10.12367	
20	10.34801	
21	10.58902	
22	10.85319	
23	11.15104	11.1
24	11.49986	
25	11.93805	
26	12.56219	
27	13.81623	

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 Chemistry Scale, Eighth Grade**

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Component Loadings for Each Item								
			B5BC30A	B5BC30B*	B5BC30C*	B5BC30D	B5BC30E	B5BC30F	B5BC30G	B5BC30H	B5BC30I
Georgia	0.87	52	0.83	0.39	0.42	0.78	0.89	0.81	0.69	0.64	0.83
Hungary	0.91	60	0.87	0.63	0.67	0.80	0.91	0.87	0.70	0.58	0.85
Kazakhstan	0.90	58	0.83	0.43	0.51	0.83	0.89	0.83	0.75	0.77	0.85
Lebanon	0.84	51	0.78	0.23	0.24	0.79	0.87	0.80	0.77	0.75	0.83
Lithuania	0.92	63	0.89	0.65	0.67	0.81	0.92	0.86	0.73	0.68	0.88
Malta	0.94	69	0.88	0.77	0.79	0.85	0.92	0.90	0.76	0.64	0.89
Morocco	0.85	51	0.74	0.22	0.31	0.79	0.86	0.85	0.75	0.77	0.80
Russian Federation	0.91	59	0.87	0.45	0.63	0.83	0.91	0.86	0.73	0.68	0.87
Slovenia	0.93	64	0.87	0.66	0.73	0.86	0.92	0.91	0.74	0.58	0.88
Sweden	0.93	64	0.89	0.67	0.74	0.86	0.91	0.88	0.70	0.64	0.83

\*Reverse coded

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

**Relationship Between the TIMSS 2015 Students Like Learning Chemistry 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)	( $r^2$ )	
Georgia	0.20	0.04	0.04
Hungary	0.11	0.01	0.02
Kazakhstan	0.17	0.03	0.03
Lebanon	0.20	0.04	0.05
Lithuania	0.16	0.02	0.02
Malta	0.31	0.10	0.09
Morocco	0.24	0.06	0.06
Russian Federation	0.16	0.03	0.02
Slovenia	0.24	0.06	0.05
Sweden	0.19	0.04	0.03
International Median	0.19	0.04	0.03

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