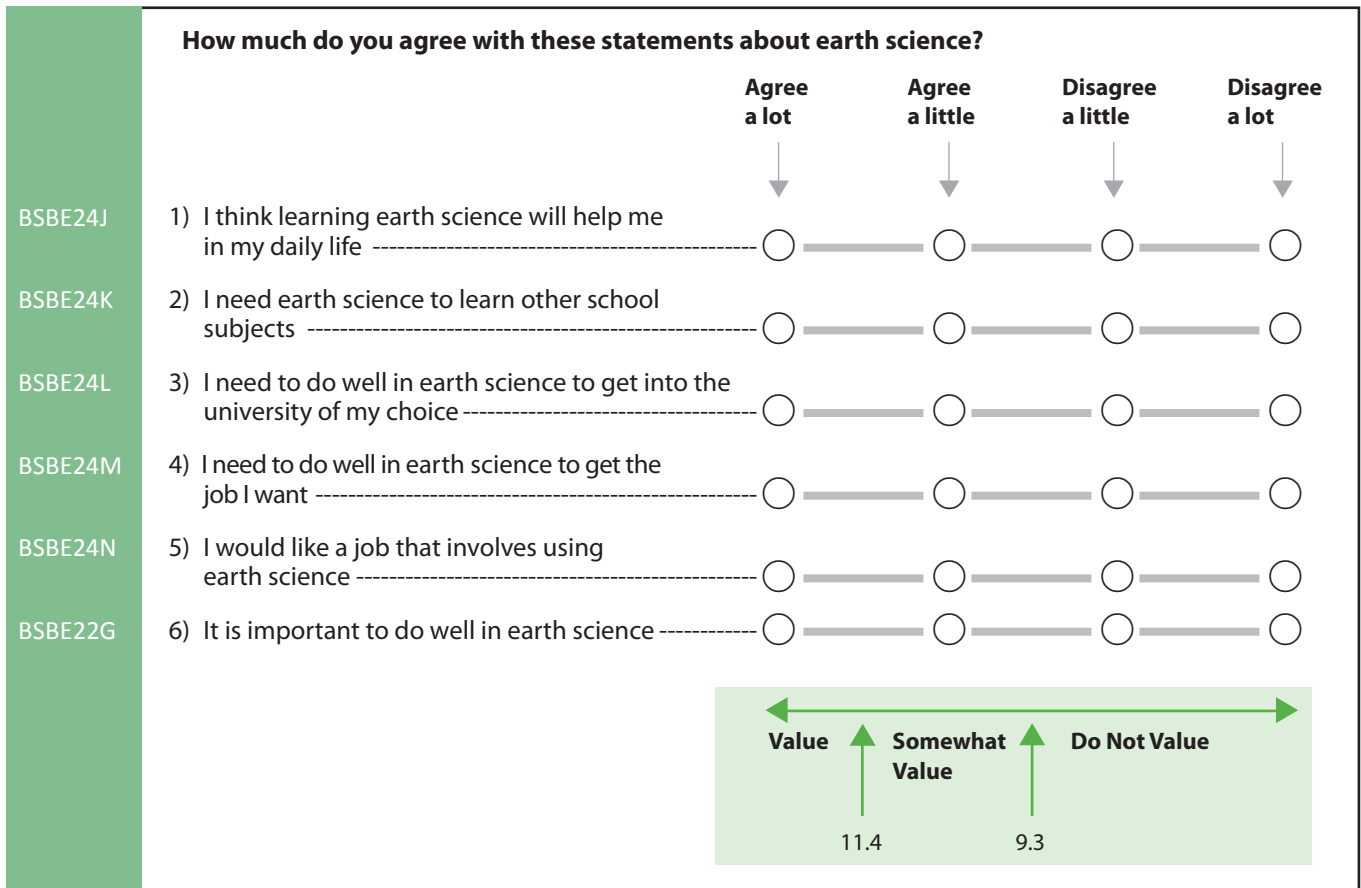


TIMSS 2011

# The TIMSS 2011 Students Value Earth Science Scale, Eighth Grade

The Students Value Earth Science (SVE) scale was created based on students' degree of agreement to the six statements described below. This scale was administered in countries where the sciences are taught as separate subjects. See [Creating and Interpreting TIMSS and PIRLS 2011 Context Questionnaire Scales](#) for more information on how the scales were formed.

Exhibit 1: Items in the TIMSS 2011 Students Value Earth Science Scale, Eighth Grade



**Exhibit 2: Item Parameters for the TIMSS 2011 Students Value Earth Science Scale, Eighth Grade**

Item	delta	tau_1	tau_2	tau_3
BSBE24J	-1.61676	-1.27052	-0.40124	1.67176
BSBE24K	-0.71435	-1.73636	-0.04648	1.78284
BSBE24L	-0.41030	-1.43532	0.01678	1.41854
BSBE24M	-0.25386	-1.51108	0.11994	1.39114
BSBE24N	0.22331	-1.51221	0.16229	1.34992
BSBE22G	-1.72464	-1.43380	-0.32220	1.75600

**Exhibit 3: Scale Transformation Constants**

Scale Transformation Constants

A = 10.05184

B = 1.11401

Transformed Scale Score = 10.05184 + 1.11401 • Logit Scale Score

**Exhibit 4: Equivalence Table of the Raw Score and the Transformed Scale Score**

Raw Score	Transformed Scale Score	Cutpoint	Raw Score	Transformed Scale Score	Cutpoint
0	4.51695		10	9.56598	
1	5.82992		11	9.90295	
2	6.50753		12	10.24536	
3	7.00886		13	10.60113	
4	7.43500		14	10.98280	
5	7.82149		15	11.40579	11.4
6	8.18820		16	11.91399	
7	8.54248		17	12.60585	
8	8.88839		18	13.94272	
9	9.22850	9.3			

**Exhibit 5: Cronbach's Alpha Reliability Coefficient and Principal Components Analysis of the Items in the TIMSS 2011 Students Value Earth Science Scale, Eighth Grade**

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Factor Loadings for Each Item					
			BSBE24J	BSBE24K	BSBE24L	BSBE24M	BSBE24N	BSBE22G
Armenia	0.83	55	0.63	0.76	0.85	0.86	0.83	0.42
Finland	0.88	62	0.77	0.78	0.81	0.84	0.78	0.74
Georgia	0.85	58	0.74	0.75	0.84	0.85	0.78	0.56
Hungary	0.87	60	0.74	0.79	0.82	0.85	0.75	0.69
Indonesia	0.85	58	0.70	0.74	0.85	0.84	0.73	0.69
Kazakhstan	0.86	59	0.74	0.75	0.85	0.86	0.76	0.62
Lebanon	-	-	-	-	-	-	-	-
Lithuania	0.86	59	0.73	0.79	0.85	0.84	0.73	0.67
Macedonia, Rep. of	0.87	60	0.64	0.81	0.87	0.86	0.79	0.65

**Exhibit 5: Cronbach's Alpha Reliability Coefficient and Principal Components Analysis of the Items in the TIMSS 2011 Students Value Earth Science Scale, Eighth Grade (Continued)**

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Factor Loadings for Each Item					
			BSBE24J	BSBE24K	BSBE24L	BSBE24M	BSBE24N	BSBE22G
Morocco	0.84	57	0.71	0.76	0.84	0.84	0.72	0.63
Romania	0.86	58	0.66	0.77	0.85	0.84	0.78	0.66
Russian Federation	0.87	61	0.73	0.77	0.87	0.86	0.78	0.66
Slovenia	0.86	59	0.75	0.74	0.84	0.84	0.74	0.68
Sweden	0.86	59	0.70	0.77	0.86	0.85	0.76	0.66
Syrian Arab Republic	0.85	58	0.71	0.79	0.83	0.82	0.75	0.63
Ukraine	0.85	57	0.74	0.78	0.83	0.82	0.69	0.64

A dash (-) indicates that the item was not administered or comparable data was not available.

**Exhibit 6: Relationship Between the TIMSS 2011 Students Value Earth Science Scale, Eighth Grade, and TIMSS 2011 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 <sup>2</sup> )	
Armenia	-0.11	0.01	0.02
Finland	0.19	0.04	0.02
Georgia	-0.12	0.01	0.02
Hungary	-0.10	0.01	0.01
Indonesia	-0.11	0.01	0.02
Kazakhstan	-0.14	0.02	0.03
Lebanon	-	-	-
Lithuania	-0.02	0.00	0.00
Macedonia, Rep. of	-0.25	0.06	0.06
Morocco	-0.11	0.01	0.01
Romania	-0.07	0.01	0.01
Russian Federation	-0.09	0.01	0.01
Slovenia	0.05	0.00	0.00
Sweden	0.03	0.00	0.00
Syrian Arab Republic	-0.05	0.00	0.00
Ukraine	-0.04	0.00	0.00
<b>International Median</b>	<b>-0.09</b>	<b>0.01</b>	<b>0.01</b>

A dash (-) indicates that the item was not administered or comparable data was not available.