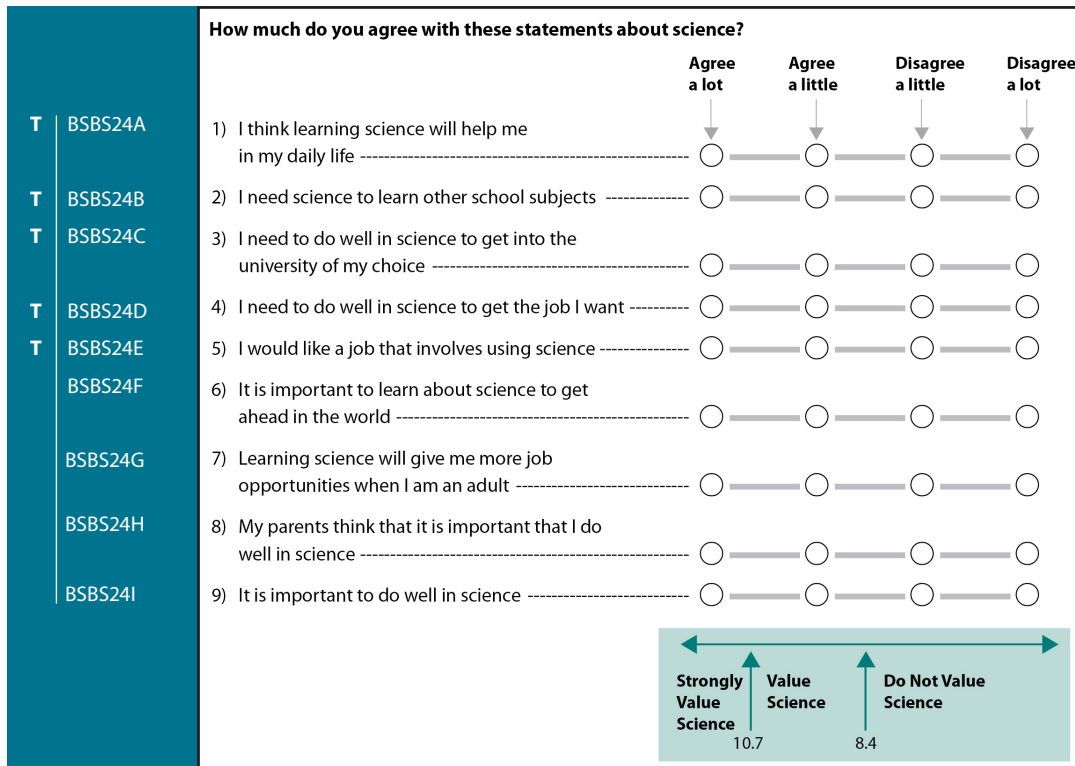


Students Value Science Scale, Eighth Grade

The Students Value Science (SVS) scale was created based on students' degree of agreement with the nine statements described below.

Items in the TIMSS 2015 Students Value Science 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 Value Science Scale, Eighth Grade

Item	delta	tau_1	tau_2	tau_3	Infit
BSBS24A	-0.49782	-1.43829	-0.52891	1.96720	1.12
BSBS24B	0.23455	-1.99011	-0.10911	2.09922	1.17
BSBS24C	-0.05110	-1.63211	-0.09250	1.72461	0.92
BSBS24D	0.24137	-1.62498	0.02997	1.59501	0.91
BSBS24E	0.99622	-1.64483	0.11575	1.52908	1.21
BSBS24F	-0.02119	-1.69905	-0.26791	1.96696	0.92
BSBS24G	-0.07333	-1.66588	-0.23263	1.89851	0.90
BSBS24H	-0.25840	-1.75651	-0.24059	1.99710	1.28
BSBS24I	-0.57030	-1.49224	-0.39374	1.88598	1.07

Scale Transformation Constants for the TIMSS 2015 Students Value Science Scale, Eighth Grade

Scale Transformation Constants	
A = 8.556049	Transformed Scale Score = 8.556049 + 0.9487 • Logit Scale Score
B = 0.9487	

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 Value Science Scale, Eighth Grade**

Raw Score	Transformed Scale Score	Cutpoint
0	4.14796	
1	5.24468	
2	5.78617	
3	6.16816	
4	6.47284	
5	6.73402	
6	6.97032	
7	7.18668	
8	7.39377	
9	7.59437	
10	7.79236	
11	7.98819	
12	8.18496	
13	8.38409	8.4
14	8.58656	
15	8.79310	
16	9.00422	
17	9.22038	
18	9.44187	
19	9.67007	
20	9.90677	
21	10.15530	
22	10.42118	
23	10.71378	10.7
24	11.04984	
25	11.45997	
26	12.03246	
27	13.15815	

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 Value Science Scale, Eighth Grade

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Component Loadings for Each Item								
			BS8S24A	BS8S24B	BS8S24C	BS8S24D	BS8S24E	BS8S24F	BS8S24G	BS8S24H	BS8S24I
Australia	0.94	67	0.82	0.79	0.86	0.85	0.79	0.85	0.86	0.72	0.83
Bahrain	0.93	63	0.77	0.78	0.83	0.83	0.76	0.83	0.83	0.72	0.79
Botswana (9)	0.86	48	0.65	0.65	0.76	0.75	0.64	0.72	0.74	0.60	0.70
Canada	0.92	63	0.79	0.76	0.84	0.83	0.76	0.82	0.83	0.70	0.78
Chile	0.93	65	0.79	0.76	0.86	0.86	0.80	0.85	0.87	0.71	0.72
Chinese Taipei	0.92	63	0.71	0.75	0.83	0.86	0.79	0.83	0.86	0.68	0.79
Egypt	0.89	53	0.64	0.71	0.78	0.77	0.71	0.76	0.76	0.70	0.73
England	0.92	63	0.79	0.75	0.82	0.83	0.75	0.85	0.84	0.70	0.81
Georgia	0.91	60	0.71	0.75	0.79	0.81	0.69	0.82	0.83	0.75	0.80
Hong Kong SAR	0.94	67	0.70	0.78	0.87	0.88	0.81	0.84	0.88	0.74	0.82
Hungary	0.91	57	0.73	0.74	0.78	0.82	0.75	0.79	0.79	0.73	0.65
Iran, Islamic Rep. of	0.91	59	0.72	0.72	0.82	0.82	0.78	0.82	0.81	0.68	0.75
Ireland	0.92	62	0.78	0.73	0.84	0.82	0.77	0.82	0.82	0.71	0.81
Israel	0.94	67	0.82	0.84	0.86	0.86	0.78	0.89	0.86	0.65	0.81
Italy	0.89	55	0.73	0.68	0.77	0.79	0.78	0.80	0.81	0.62	0.62
Japan	0.90	55	0.68	0.71	0.80	0.83	0.67	0.84	0.81	0.64	0.63
Jordan	0.92	60	0.71	0.76	0.83	0.83	0.70	0.83	0.81	0.74	0.77
Kazakhstan	0.94	66	0.75	0.79	0.86	0.86	0.78	0.84	0.86	0.82	0.77
Korea, Rep. of	0.92	61	0.73	0.77	0.84	0.83	0.67	0.78	0.84	0.71	0.84
Kuwait	0.89	54	0.69	0.67	0.79	0.78	0.71	0.79	0.79	0.64	0.71
Lebanon	0.91	58	0.67	0.72	0.80	0.81	0.76	0.80	0.81	0.73	0.74
Lithuania	0.91	59	0.71	0.74	0.81	0.82	0.71	0.76	0.82	0.73	0.80
Malaysia	0.90	56	0.71	0.68	0.81	0.80	0.66	0.78	0.79	0.75	0.77
Malta	0.94	67	0.78	0.77	0.84	0.84	0.77	0.84	0.86	0.79	0.84
Morocco	0.89	54	0.65	0.72	0.79	0.78	0.73	0.76	0.76	0.69	0.75
New Zealand	0.93	65	0.81	0.78	0.84	0.83	0.76	0.84	0.84	0.75	0.82
Norway (9)	0.92	60	0.78	0.75	0.83	0.82	0.77	0.80	0.81	0.62	0.77
Oman	0.88	52	0.67	0.68	0.76	0.77	0.69	0.76	0.78	0.69	0.68
Qatar	0.94	67	0.79	0.78	0.86	0.85	0.79	0.86	0.87	0.78	0.81
Russian Federation	0.91	59	0.71	0.73	0.82	0.83	0.74	0.79	0.81	0.70	0.78
Saudi Arabia	0.93	62	0.75	0.77	0.82	0.82	0.74	0.83	0.84	0.74	0.79
Singapore	0.90	57	0.72	0.65	0.82	0.82	0.71	0.80	0.84	0.66	0.77
Slovenia	0.93	64	0.73	0.72	0.83	0.85	0.77	0.84	0.86	0.75	0.82
South Africa (9)	0.92	60	0.73	0.71	0.84	0.84	0.78	0.78	0.81	0.69	0.76
Sweden	0.92	60	0.70	0.72	0.85	0.85	0.77	0.82	0.81	0.70	0.75
Thailand	0.91	59	0.70	0.74	0.80	0.81	0.69	0.82	0.81	0.76	0.78
Turkey	0.90	55	0.64	0.72	0.79	0.81	0.75	0.82	0.79	0.62	0.71
United Arab Emirates	0.93	64	0.79	0.74	0.85	0.84	0.77	0.84	0.84	0.74	0.79
United States	0.92	62	0.79	0.75	0.82	0.83	0.76	0.85	0.85	0.68	0.77
Benchmarking Participants											
Buenos Aires, Argentina	0.91	58	0.75	0.77	0.80	0.82	0.75	0.74	0.83	0.65	0.71
Ontario, Canada	0.93	64	0.79	0.76	0.85	0.84	0.78	0.84	0.84	0.71	0.78
Quebec, Canada	0.92	60	0.77	0.75	0.84	0.83	0.74	0.76	0.82	0.69	0.78
Norway (8)	0.92	62	0.79	0.76	0.85	0.84	0.75	0.82	0.81	0.65	0.77
Abu Dhabi, UAE	0.94	66	0.81	0.77	0.86	0.84	0.76	0.86	0.86	0.77	0.80
Dubai, UAE	0.92	62	0.77	0.71	0.84	0.84	0.79	0.82	0.85	0.70	0.78
Florida, US	0.92	63	0.79	0.76	0.83	0.82	0.75	0.85	0.85	0.70	0.79

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

Relationship Between the TIMSS 2015 Students Value 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)	
Australia	0.32	0.10	0.09
Bahrain	0.20	0.04	0.03
Botswana (9)	0.43	0.18	0.16
Canada	0.24	0.06	0.05
Chile	0.03	0.00	0.00
Chinese Taipei	0.35	0.12	0.10
Egypt	0.21	0.05	0.04
England	0.24	0.06	0.06
Georgia	0.09	0.01	0.01
Hong Kong SAR	0.21	0.04	0.04
Hungary	0.07	0.01	0.01
Iran, Islamic Rep. of	0.11	0.01	0.01
Ireland	0.31	0.10	0.08
Israel	0.17	0.03	0.03
Italy	0.15	0.02	0.01
Japan	0.32	0.10	0.07
Jordan	0.16	0.02	0.03
Kazakhstan	0.10	0.01	0.01
Korea, Rep. of	0.38	0.15	0.13
Kuwait	0.14	0.02	0.01
Lebanon	0.22	0.05	0.05
Lithuania	0.06	0.00	0.00
Malaysia	0.20	0.04	0.08
Malta	0.43	0.18	0.15
Morocco	0.09	0.01	0.01
New Zealand	0.22	0.05	0.04
Norway (9)	0.18	0.03	0.03
Oman	0.18	0.03	0.03
Qatar	0.26	0.07	0.06
Russian Federation	0.01	0.00	0.00
Saudi Arabia	0.13	0.02	0.02
Singapore	0.25	0.06	0.07
Slovenia	0.24	0.06	0.06
South Africa (9)	0.02	0.00	0.01
Sweden	0.13	0.02	0.03
Thailand	0.21	0.04	0.04
Turkey	0.10	0.01	0.01
United Arab Emirates	0.24	0.06	0.06
United States	0.21	0.04	0.05
International Median	0.20	0.04	0.04
Benchmarking Participants			
Buenos Aires, Argentina	-0.01	0.00	0.00
Ontario, Canada	0.24	0.06	0.05
Quebec, Canada	0.24	0.06	0.06
Norway (8)	0.13	0.02	0.01
Abu Dhabi, UAE	0.23	0.05	0.06
Dubai, UAE	0.23	0.05	0.05
Florida, US	0.18	0.03	0.03

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