

Students' Views on Engaging Teaching in Science Lessons Scale, Fourth Grade

The Students' Views on Engaging Teaching in Science Lessons (ESL) scale was created based on students' degree of agreement with the ten statements described below.

Items in the TIMSS 2015 Students' Views on Engaging Teaching in Science Lessons Scale, Fourth Grade

How much do you agree with these statements about your science lessons?

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
ASBS05A 1) I know what my teacher expects me to do -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ASBS05B 2) My teacher is easy to understand -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ASBS05C 3) I am interested in what my teacher says -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ASBS05D 4) My teacher gives me interesting things to do -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ASBS05E 5) My teacher has clear answers to my questions ----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ASBS05F 6) My teacher is good at explaining science -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ASBS05G 7) My teacher lets me show what I have learned-----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ASBS05H 8) My teacher does a variety of things to help us learn -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ASBS05I 9) My teacher tells me how to do better when I make a mistake -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ASBS05J 10) My teacher listens to what I have to say -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Very Engaging Teaching 9.0 Engaging Teaching Less than Engaging Teaching 7.0

Item Parameters for the TIMSS 2015 Students' Views on Engaging Teaching in Science Lessons Scale, Fourth Grade

Item	delta	tau_1	tau_2	tau_3	Infit
ASBS05A	0.50888	-0.81715	-0.58879	1.40594	1.50
ASBS05B	-0.03751	-0.82603	-0.63735	1.46338	1.09
ASBS05C	-0.04871	-0.88128	-0.35960	1.24088	1.02
ASBS05D	0.22876	-0.99483	-0.27841	1.27324	1.02
ASBS05E	-0.21612	-0.95060	-0.40396	1.35456	0.90
ASBS05F	-0.47098	-0.74576	-0.49669	1.24245	0.91
ASBS05G	0.45511	-1.06157	-0.35018	1.41175	1.15
ASBS05H	-0.31307	-0.72648	-0.49092	1.21740	1.02
ASBS05I	-0.05738	-0.77774	-0.42703	1.20477	1.04
ASBS05J	-0.04898	-0.67414	-0.50076	1.17490	1.05

Scale Transformation Constants for the TIMSS 2015 Students' Views on Engaging Teaching in Science Lessons Scale, Fourth Grade

Scale Transformation Constants

A = 7.078772

B = 1.209047

Transformed Scale Score = 7.078772 + 1.209047 • Logit Scale Score

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' Views on Engaging Teaching in Science Lessons Scale,
Fourth Grade**

Raw Score	Transformed Scale Score	Cutpoint
0	2.40628	
1	3.68357	
2	4.27493	
3	4.67030	
4	4.97489	
5	5.22528	
6	5.44624	
7	5.64160	
8	5.82255	
9	5.99269	
10	6.15531	
11	6.31297	
12	6.46770	
13	6.62249	
14	6.77592	
15	6.93146	7.0
16	7.09103	
17	7.25510	
18	7.42646	
19	7.60651	
20	7.79674	
21	8.00038	
22	8.22000	
23	8.45923	
24	8.72285	
25	9.01785	9.0
26	9.35467	
27	9.75424	
28	10.25748	
29	10.97053	
30	12.39384	

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' Views on Engaging Teaching in Science Lessons Scale, Fourth Grade

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Component Loadings for Each Item									
			ASBS05A	ASBS05B	ASBS05C	ASBS05D	ASBS05E	ASBS05F	ASBS05G	ASBS05H	ASBS05I	ASBS05J
Australia	0.91	56	0.63	0.78	0.79	0.78	0.80	0.76	0.69	0.77	0.72	0.72
Bahrain	0.90	54	0.49	0.71	0.77	0.79	0.81	0.76	0.75	0.78	0.74	0.71
Belgium (Flemish)	0.87	48	0.62	0.74	0.71	0.69	0.75	0.72	0.58	0.70	0.69	0.69
Bulgaria	0.88	50	0.54	0.66	0.71	0.71	0.78	0.74	0.75	0.71	0.74	0.74
Canada	0.90	53	0.60	0.76	0.76	0.76	0.78	0.76	0.68	0.74	0.71	0.71
Chile	0.90	53	0.56	0.68	0.75	0.75	0.78	0.78	0.68	0.76	0.75	0.75
Chinese Taipei	0.92	59	0.76	0.79	0.81	0.77	0.79	0.77	0.75	0.80	0.74	0.69
Croatia	0.90	55	0.59	0.77	0.66	0.72	0.82	0.82	0.76	0.73	0.76	0.78
Cyprus	0.93	60	0.63	0.70	0.81	0.80	0.83	0.82	0.78	0.82	0.77	0.79
Czech Republic	0.90	55	0.65	0.80	0.74	0.68	0.79	0.80	0.62	0.79	0.75	0.75
Denmark	0.92	60	0.62	0.80	0.80	0.78	0.79	0.81	0.74	0.80	0.77	0.77
England	0.91	55	0.62	0.78	0.77	0.77	0.80	0.79	0.65	0.74	0.73	0.73
Finland	0.89	52	0.52	0.79	0.73	0.72	0.72	0.80	0.72	0.74	0.72	0.73
France	0.89	52	0.55	0.74	0.74	0.75	0.76	0.77	0.73	0.73	0.69	0.72
Georgia	0.89	57	0.39	0.78	0.54	0.82	0.84	0.86	0.82	0.83	0.70	0.82
Germany	0.89	51	0.52	0.78	0.74	0.76	0.79	0.78	0.67	0.66	0.71	0.71
Hong Kong SAR	0.94	65	0.77	0.81	0.83	0.84	0.85	0.81	0.78	0.82	0.78	0.78
Hungary	0.90	54	0.63	0.71	0.76	0.74	0.78	0.79	0.68	0.74	0.74	0.76
Indonesia	0.81	38	0.47	0.56	0.61	0.69	0.59	0.62	0.68	0.65	0.66	0.60
Iran, Islamic Rep. of	0.85	46	0.37	0.66	0.75	0.65	0.74	0.77	0.72	0.71	0.65	0.70
Ireland	0.90	53	0.56	0.76	0.76	0.75	0.79	0.76	0.67	0.74	0.72	0.74
Italy	0.85	45	0.45	0.57	0.72	0.73	0.75	0.71	0.69	0.63	0.67	0.71
Japan	0.92	58	0.62	0.80	0.82	0.76	0.81	0.79	0.59	0.79	0.80	0.78
Jordan	0.87	49	0.37	0.66	0.77	0.76	0.77	0.78	0.64	0.79	0.73	0.66
Kazakhstan	0.84	45	0.44	0.60	0.71	0.76	0.70	0.74	0.73	0.64	0.68	0.66
Korea, Rep. of	0.92	59	0.63	0.77	0.81	0.81	0.81	0.80	0.63	0.82	0.80	0.79
Kuwait	0.84	44	0.39	0.65	0.71	0.73	0.75	0.74	0.63	0.71	0.64	0.64
Lithuania	0.87	48	0.54	0.65	0.65	0.73	0.77	0.75	0.64	0.68	0.70	0.77
Morocco	0.79	38	0.34	0.47	0.67	0.69	0.69	0.71	0.52	0.71	0.63	0.66
Netherlands	0.86	45	0.60	0.71	0.67	0.64	0.75	0.70	0.62	0.65	0.64	0.73
New Zealand	0.92	57	0.65	0.76	0.78	0.80	0.81	0.78	0.72	0.78	0.75	0.75
Northern Ireland	0.90	53	0.59	0.75	0.74	0.77	0.77	0.71	0.67	0.74	0.73	0.74
Norway (5)	0.90	53	0.60	0.75	0.71	0.74	0.76	0.77	0.70	0.73	0.75	0.72
Oman	0.82	42	0.34	0.65	0.73	0.69	0.69	0.70	0.67	0.67	0.64	0.65
Poland	0.93	62	0.71	0.77	0.79	0.80	0.84	0.83	0.79	0.79	0.76	0.79
Portugal	0.84	44	0.53	0.55	0.67	0.74	0.69	0.69	0.66	0.67	0.68	0.72
Qatar	0.91	56	0.55	0.76	0.79	0.80	0.80	0.80	0.71	0.79	0.74	0.72
Russian Federation	0.86	48	0.51	0.67	0.73	0.74	0.75	0.73	0.69	0.69	0.67	0.70
Saudi Arabia	0.89	51	0.47	0.72	0.77	0.74	0.78	0.78	0.68	0.75	0.69	0.73
Serbia	0.87	48	0.52	0.74	0.72	0.68	0.78	0.73	0.74	0.58	0.70	0.68
Singapore	0.91	56	0.66	0.78	0.79	0.79	0.79	0.78	0.68	0.76	0.76	0.69
Slovak Republic	0.90	55	0.65	0.75	0.73	0.71	0.78	0.77	0.70	0.77	0.76	0.75
Slovenia	0.91	56	0.64	0.70	0.71	0.78	0.79	0.83	0.74	0.78	0.77	0.74
South Africa (5)	-	-	-	-	-	-	-	-	-	-	-	-
Spain	0.88	51	0.47	0.68	0.74	0.74	0.78	0.69	0.71	0.76	0.77	0.77
Sweden	0.89	52	0.53	0.75	0.71	0.73	0.78	0.78	0.69	0.74	0.70	0.73
Turkey	0.77	37	0.39	0.55	0.61	0.45	0.70	0.66	0.66	0.57	0.68	0.70
United Arab Emirates	0.90	54	0.54	0.75	0.77	0.77	0.79	0.79	0.71	0.74	0.73	0.71
United States	0.91	56	0.64	0.78	0.78	0.76	0.79	0.78	0.69	0.76	0.73	0.76
Benchmarking Participants												
Buenos Aires, Argentina	0.87	49	0.49	0.63	0.75	0.73	0.78	0.75	0.65	0.74	0.73	0.71
Ontario, Canada	0.90	53	0.62	0.76	0.77	0.76	0.77	0.76	0.67	0.74	0.72	0.71
Quebec, Canada	0.89	52	0.52	0.76	0.75	0.76	0.78	0.73	0.72	0.74	0.69	0.70
Norway (4)	0.89	52	0.61	0.71	0.72	0.75	0.77	0.76	0.72	0.74	0.74	0.70
Abu Dhabi, UAE	0.89	52	0.51	0.74	0.75	0.77	0.79	0.77	0.70	0.73	0.71	0.70
Dubai, UAE	0.90	53	0.59	0.74	0.75	0.76	0.78	0.77	0.70	0.74	0.72	0.71
Florida, US	0.91	57	0.66	0.77	0.77	0.76	0.79	0.78	0.73	0.73	0.75	0.77

A dash (-) indicates comparable data not available.

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

Relationship Between the TIMSS 2015 Students' Views on Engaging Teaching in Science Lessons Scale, Fourth 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	-0.02	0.00	0.00
Bahrain	0.22	0.05	0.04
Belgium (Flemish)	-0.08	0.01	0.01
Bulgaria	0.11	0.01	0.02
Canada	0.02	0.00	0.00
Chile	0.09	0.01	0.01
Chinese Taipei	0.07	0.01	0.01
Croatia	0.06	0.00	0.01
Cyprus	0.03	0.00	0.00
Czech Republic	-0.06	0.00	0.00
Denmark	0.02	0.00	0.00
England	-0.05	0.00	0.00
Finland	0.07	0.00	0.01
France	-0.02	0.00	0.00
Georgia	0.10	0.01	0.02
Germany	-0.02	0.00	0.00
Hong Kong SAR	0.07	0.00	0.01
Hungary	0.04	0.00	0.00
Indonesia	0.16	0.02	0.04
Iran, Islamic Rep. of	0.08	0.01	0.02
Ireland	-0.05	0.00	0.00
Italy	0.04	0.00	0.01
Japan	0.04	0.00	0.00
Jordan	-	-	-
Kazakhstan	0.12	0.01	0.02
Korea, Rep. of	0.09	0.01	0.01
Kuwait	0.13	0.02	0.03
Lithuania	0.07	0.00	0.01
Morocco	0.17	0.03	0.03
Netherlands	-0.01	0.00	0.00
New Zealand	-0.05	0.00	0.00
Northern Ireland	-0.06	0.00	0.00
Norway (5)	-0.01	0.00	0.00
Oman	0.17	0.03	0.04
Poland	-0.02	0.00	0.00
Portugal	0.07	0.01	0.00
Qatar	0.19	0.04	0.04
Russian Federation	-0.01	0.00	0.00
Saudi Arabia	0.12	0.01	0.02
Serbia	-0.02	0.00	0.00
Singapore	0.07	0.00	0.00
Slovak Republic	-0.07	0.00	0.00
Slovenia	0.06	0.00	0.01
South Africa (5)	-	-	-
Spain	0.03	0.00	0.00
Sweden	-0.06	0.00	0.01
Turkey	0.28	0.08	0.07
United Arab Emirates	0.20	0.04	0.04
United States	0.06	0.00	0.01
International Median	0.06	0.00	0.01
Benchmarking Participants			
Buenos Aires, Argentina	0.01	0.00	0.00
Ontario, Canada	0.02	0.00	0.00
Quebec, Canada	-0.01	0.00	0.00
Norway (4)	0.03	0.00	0.00
Abu Dhabi, UAE	0.18	0.03	0.03
Dubai, UAE	0.16	0.03	0.03
Florida, US	0.15	0.02	0.03

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

A dash (-) indicates comparable data not available.