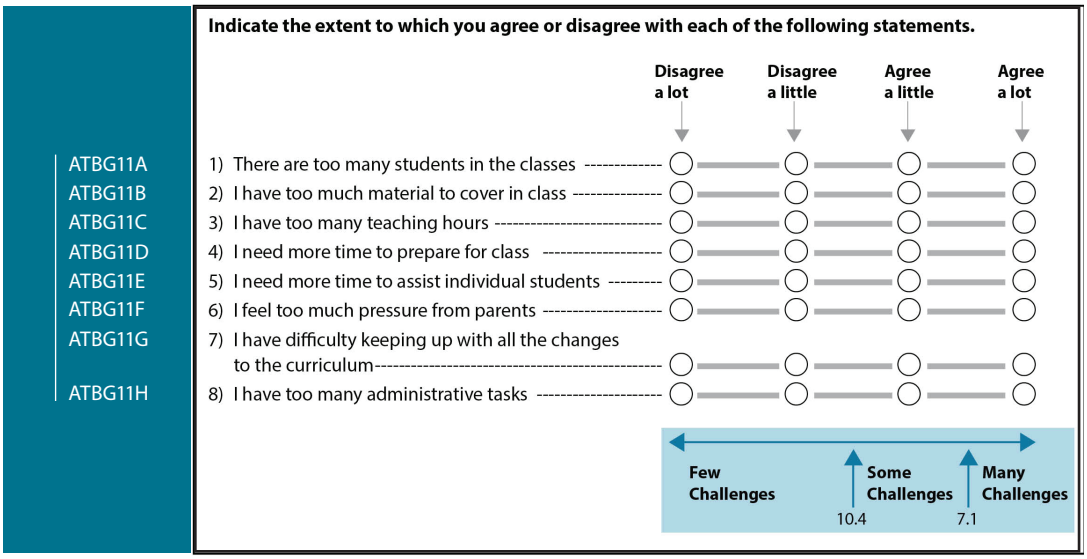
Challenges Facing Teachers Scale, Fourth Grade

The Challenges Facing Teachers (CFT) scale was created based on teachers' degree of agreement with the eight statements described below.

Items in the TIMSS 2015 Challenges Facing Teachers Scale, Fourth Grade



Item Parameters for the TIMSS 2015 Challenges Facing Teachers Scale, Fourth Grade

Item	delta	tau_1	tau_2	tau_3	Infit
ATBG11A	0.07889	-0.76467	0.14939	0.61528	1.15
ATBG11B	0.47864	-1.35276	0.09232	1.26044	0.93
ATBG11C	-0.52363	-0.93560	-0.19692	1.13252	0.97
ATBG11D	0.33075	-1.28469	0.21303	1.07166	0.92
ATBG11E	1.28961	-1.28077	0.54728	0.73349	0.89
ATBG11F	-0.86698	-1.40866	-0.06337	1.47203	1.04
ATBG11G	-0.76404	-1.47618	0.14792	1.32826	1.00
ATBG11H	-0.02324	-0.71014	0.16389	0.54625	1.09

Scale Transformation Constants for the TIMSS 2015 Challenges Facing Teachers Scale, Fourth Grade

Scale Transformation Constants	
A = 10.434525	Transformed Scale Score = 10.434525 + 2.004701 • Logit Scale Score
B = 2.004701	

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

Equivalence Table of Raw and Transformed Scale Scores for the TIMSS 2015 Challenges Facing Teachers Scale, Fourth Grade

Raw Score	Transformed Scale Score	Cutpoint
0	1.92363	
1	4.32702	
2	5.54237	
3	6.39547	
4	7.07364	7.1
5	7.64510	
6	8.14648	
7	8.59908	
8	9.01602	
9	9.40854	
10	9.78201	
11	10.14266	
12	10.49619	10.4
13	10.84813	
14	11.20423	
15	11.57049	
16	11.95345	
17	12.36030	
18	12.79709	
19	13.27735	
20	13.81571	
21	14.43884	
22	15.19930	
23	16.26129	
24	18.41488	

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 Challenges Facing Teachers Scale, Fourth Grade

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Component Loadings for Each Item							
			ATBG11A	ATBG11B	ATBG11C	ATBG11D	ATBG11E	ATBG11F	ATBG11G	ATBG11H
Australia	0.74	38	0.61	0.70	0.53	0.75	0.68	0.49	0.49	0.61
Bahrain	0.81	43	0.63	0.66	0.73	0.72	0.68	0.60	0.64	0.60
Belgium (Flemish)	0.73	35	0.54	0.68	0.59	0.67	0.63	0.48	0.45	0.67
Bulgaria	0.71	34	0.61	0.62	0.74	0.65	0.55	0.37	0.44	0.58
Canada	0.77	39	0.62	0.65	0.56	0.66	0.60	0.61	0.59	0.68
Chile	0.72	38	0.58	0.68	0.67	0.74	0.76	0.47	0.31	0.60
Chinese Taipei	0.80	43	0.70	0.73	0.72	0.72	0.67	0.64	0.48	0.52
Croatia	0.78	40	0.56	0.65	0.62	0.69	0.70	0.67	0.52	0.64
Cyprus	0.66	30	0.49	0.55	0.63	0.72	0.50	0.49	0.51	0.42
Czech Republic	0.78	40	0.51	0.68	0.72	0.75	0.71	0.55	0.56	0.54
Denmark	0.78	41	0.57	0.58	0.78	0.76	0.67	0.55	0.52	0.62
England	0.86	51	0.65	0.79	0.69	0.72	0.78	0.62	0.71	0.77
Finland	0.67	31	0.49	0.59	0.61	0.70	0.60	0.46	0.55	0.41
France	0.61	28	0.42	0.62	0.56	0.62	0.46	0.41	0.57	0.50
Georgia	0.66	31	0.54	0.70	0.52	0.65	0.59	0.48	0.55	0.34
Germany	0.74	36	0.49	0.55	0.69	0.70	0.58	0.55	0.59	0.63
Hong Kong SAR	0.76	39	0.69	0.65	0.41	0.71	0.63	0.56	0.68	0.60
Hungary	0.78	41	0.48	0.67	0.69	0.78	0.75	0.58	0.54	0.56
Indonesia	0.70	33	0.49	0.71	0.63	0.55	0.44	0.57	0.52	0.61
Iran, Islamic Rep. of	0.73	35	0.53	0.52	0.55	0.67	0.68	0.56	0.61	0.61
Ireland	0.81	44	0.54	0.74	0.52	0.75	0.64	0.62	0.73	0.74
Italy	0.76	39	0.45	0.74	0.48	0.78	0.64	0.54	0.72	0.52
Japan	0.73	38	0.35	0.76	0.77	0.76	0.66	0.36	0.35	0.69
Jordan	0.76	39	0.65	0.58	0.73	0.82	0.60	0.61	0.42	0.52
Kazakhstan	0.66	32	0.26	0.35	0.68	0.57	0.46	0.70	0.65	0.69
Korea, Rep. of	0.84	48	0.55	0.75	0.79	0.72	0.75	0.67	0.67	0.62
Kuwait	0.76	38	0.52	0.66	0.75	0.66	0.60	0.59	0.62	0.50
Lithuania	0.67	31	0.43	0.59	0.48	0.65	0.57	0.58	0.66	0.47
Morocco	0.70	34	0.62	0.72	0.72	0.58	0.50	0.41	0.51	0.49
Netherlands	0.73	36	0.53	0.54	0.54	0.72	0.73	0.52	0.53	0.66
New Zealand	0.82	46	0.53	0.72	0.61	0.78	0.73	0.59	0.70	0.72
Northern Ireland	0.80	45	0.65	0.64	0.67	0.73	0.70	0.46	0.67	0.78
Norway (5)	0.79	42	0.53	0.68	0.72	0.74	0.61	0.66	0.60	0.65
Oman	0.75	38	0.58	0.70	0.67	0.73	0.63	0.60	0.51	0.43
Poland	0.74	36	0.46	0.48	0.58	0.74	0.71	0.59	0.60	0.59
Portugal	0.74	40	0.58	0.76	0.64	0.71	0.73	0.56	0.49	0.52
Qatar	0.79	41	0.52	0.66	0.64	0.71	0.58	0.72	0.67	0.58
Russian Federation	0.68	33	0.37	0.59	0.53	0.74	0.63	0.63	0.61	0.38
Saudi Arabia	0.75	38	0.73	0.73	0.69	0.66	0.65	0.45	0.46	0.46
Serbia	0.76	38	0.64	0.61	0.71	0.69	0.63	0.55	0.58	0.50
Singapore	-	-	-	-	-	-	-	-	-	-
Slovak Republic	0.79	42	0.60	0.77	0.73	0.69	0.66	0.59	0.54	0.53
Slovenia	0.68	31	0.65	0.62	0.64	0.55	0.53	0.50	0.50	0.45
South Africa (5)	0.66	31	0.51	0.50	0.70	0.70	0.56	0.25	0.56	0.53
Spain	0.72	34	0.56	0.50	0.60	0.71	0.54	0.54	0.61	0.57
Sweden	0.73	37	0.36	0.65	0.69	0.81	0.66	0.51	0.41	0.64
Turkey	0.76	38	0.57	0.77	0.75	0.72	0.65	0.42	0.39	0.48
United Arab Emirates	0.84	47	0.62	0.79	0.74	0.77	0.72	0.61	0.63	0.60
United States	0.79	41	0.49	0.76	0.55	0.73	0.65	0.57	0.70	0.65
Benchmarking Participants										
Buenos Aires, Argentina	0.78	40	0.63	0.61	0.77	0.66	0.72	0.52	0.54	0.59
Ontario, Canada	0.77	39	0.63	0.72	0.52	0.65	0.56	0.61	0.64	0.63
Quebec, Canada	0.79	41	0.65	0.59	0.59	0.61	0.62	0.67	0.66	0.71
Norway (4)	0.74	37	0.58	0.63	0.64	0.65	0.58	0.64	0.53	0.59
Abu Dhabi, UAE	0.79	41	0.59	0.74	0.68	0.75	0.71	0.35	0.64	0.59
Dubai, UAE	0.84	49	0.56	0.82	0.74	0.73	0.73	0.72	0.63	0.64
Florida, US	0.73	37	0.49	0.67	0.29	0.73	0.81	0.49	0.60	0.65

A dash (–) indicates comparable data not available.

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

Relationship Between the TIMSS 2015 Challenges Facing Teachers Scale, Fourth Grade, and TIMSS 2015 Achievement

Country	Pearson's Correlation with Achievement				Variance in Achievement Accounted for by Difference Between Regions of the Scale (η^2)	
	(r)		(r^2)			
	Mathematics	Science	Mathematics	Science	Mathematics	Science
Australia	-0.01	0.02	0.00	0.00	0.00	0.00
Bahrain	0.01	-0.02	0.00	0.00	0.00	0.00
Belgium (Flemish)	-0.11	-0.11	0.01	0.01	0.01	0.01
Bulgaria	0.06	0.04	0.00	0.00	0.00	0.00
Canada	-0.07	-0.06	0.01	0.00	0.00	0.00
Chile	0.04	0.05	0.00	0.00	0.01	0.01
Chinese Taipei	0.06	-0.04	0.00	0.00	0.01	0.00
Croatia	-0.06	-0.05	0.00	0.00	0.00	0.00
Cyprus	0.01	0.03	0.00	0.00	0.00	0.00
Czech Republic	0.00	-0.01	0.00	0.00	0.00	0.00
Denmark	-0.03	0.02	0.00	0.00	0.00	0.00
England	0.04	0.02	0.00	0.00	0.00	0.00
Finland	-0.01	-0.01	0.00	0.00	0.00	0.00
France	0.05	0.05	0.00	0.00	0.01	0.00
Georgia	0.07	0.11	0.00	0.01	0.01	0.01
Germany	0.02	-0.01	0.00	0.00	0.00	0.00
Hong Kong SAR	-0.04	0.10	0.00	0.01	0.01	0.01
Hungary	-0.10	-0.11	0.01	0.01	0.01	0.01
Indonesia	0.07	0.06	0.00	0.00	0.01	0.01
Iran, Islamic Rep. of	0.02	0.02	0.00	0.00	0.00	0.00
Ireland	-0.05	-0.02	0.00	0.00	0.00	0.00
Italy	-0.02	-0.06	0.00	0.00	0.00	0.00
Japan	-0.03	-0.05	0.00	0.00	0.00	0.00
Jordan	0.09	-	0.01	-	0.00	-
Kazakhstan	0.15	0.16	0.02	0.03	0.00	0.00
Korea, Rep. of	0.01	0.01	0.00	0.00	0.00	0.00
Kuwait	0.12	0.09	0.01	0.01	0.01	0.00
Lithuania	-0.08	-0.08	0.01	0.01	0.01	0.01
Morocco	0.14	0.16	0.02	0.03	0.01	0.01
Netherlands	-0.05	-0.07	0.00	0.00	0.01	0.01
New Zealand	-0.01	-0.03	0.00	0.00	0.00	0.00
Northern Ireland	0.02	0.01	0.00	0.00	0.00	0.00
Norway (5)	0.02	0.04	0.00	0.00	0.00	0.00
Oman	-0.01	0.00	0.00	0.00	0.01	0.00
Poland	-0.02	-0.05	0.00	0.00	0.00	0.00
Portugal	0.08	0.06	0.01	0.00	0.02	0.01
Qatar	0.08	0.08	0.01	0.01	0.02	0.01
Russian Federation	0.06	0.06	0.00	0.00	0.01	0.01
Saudi Arabia	0.08	0.15	0.01	0.02	0.01	0.01
Serbia	-0.04	-0.03	0.00	0.00	0.01	0.01
Singapore	-	-	-	-	-	-
Slovak Republic	0.02	0.03	0.00	0.00	0.00	0.00
Slovenia	-0.01	0.01	0.00	0.00	0.00	0.00
South Africa (5)	0.10	-	0.01	-	0.03	-
Spain	-0.01	-0.01	0.00	0.00	0.00	0.00
Sweden	-0.01	0.05	0.00	0.00	0.00	0.00
Turkey	0.02	0.03	0.00	0.00	0.00	0.00
United Arab Emirates	0.13	0.16	0.02	0.03	0.01	0.02
United States	-0.06	-0.06	0.00	0.00	0.00	0.00
International Median	0.01	0.02	0.00	0.00	0.00	0.00
Benchmarking Participants						
Buenos Aires, Argentina	0.13	0.14	0.02	0.02	0.01	0.01
Ontario, Canada	-0.06	-0.08	0.00	0.01	0.00	0.01
Quebec, Canada	-0.01	0.01	0.00	0.00	0.01	0.00
Norway (4)	-0.04	-0.01	0.00	0.00	0.00	0.00
Abu Dhabi, UAE	0.18	0.15	0.03	0.02	0.03	0.02
Dubai, UAE	0.05	0.08	0.00	0.01	0.00	0.00
Florida, US	0.02	-0.02	0.00	0.00	0.00	0.00

A dash (–) indicates comparable data not available.

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