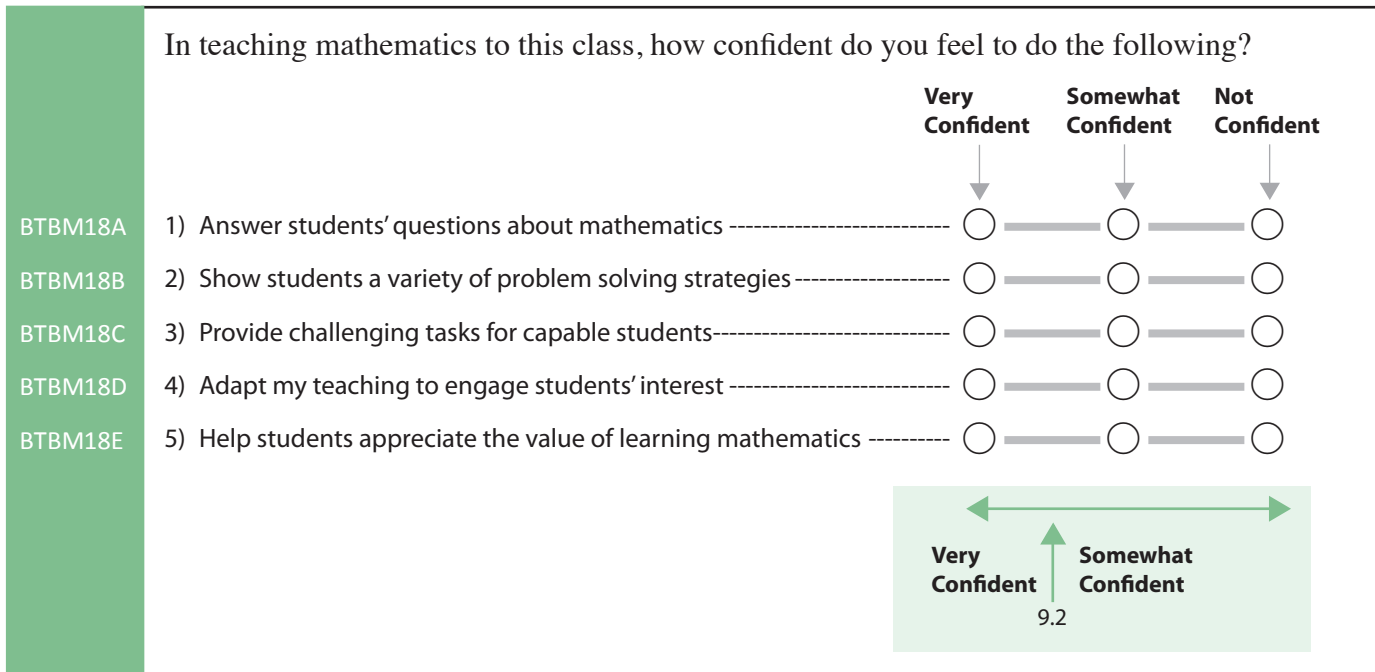


TIMSS 2011

# The TIMSS 2011 Confidence in Teaching Mathematics Scale, Eighth Grade

The Confidence in Teaching Mathematics (CTM) scale was created based on teachers' responses to the five statements described below. 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 Confidence in Teaching Mathematics Scale, Eighth Grade**



**Exhibit 2: Item Parameters for the TIMSS 2011 Confidence in Teaching Mathematics Scale, Eighth Grade<sup>1</sup>**

Item	delta
BTBM18A	-3.05276
BTBM18B	-1.96637
BTBM18C	-0.99074
BTBM18D	-0.82823
BTBM18E	-1.03961

<sup>1</sup> For the purpose of scaling, the categories "Somewhat Confident" and "Not Confident" were combined because there were very few respondents in each of these categories.

### Exhibit 3: Scale Transformation Constants

#### Scale Transformation Constants

$$A = 10.60547$$

$$B = 1.24946$$

$$\text{Transformed Scale Score} = 10.60547 + 1.24946 \cdot \text{Logit Scale Score}$$

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

Raw Score	Transformed Scale Score	Cutpoint
0	5.07392	
1	6.99358	
2	8.18994	
3	9.21171	9.2
4	10.27828	
5	11.98525	

### Exhibit 5: Cronbach's Alpha Reliability Coefficient and Principal Components Analysis of the Items in the TIMSS 2011 Confidence in Teaching Mathematics Scale, Eighth Grade

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Factor Loadings for Each Item				
			BTBM18A	BTBM18B	BTBM18C	BTBM18D	BTBM18E
Armenia	0.65	43	0.55	0.75	0.65	0.64	0.69
Australia	0.79	55	0.65	0.79	0.78	0.74	0.74
Bahrain	0.69	45	0.62	0.71	0.69	0.71	0.59
Chile	0.55	37	0.54	0.66	0.62	0.62	0.58
Chinese Taipei	0.74	50	0.68	0.82	0.76	0.67	0.59
England	0.71	47	0.45	0.73	0.71	0.76	0.73
Finland	0.67	43	0.57	0.70	0.70	0.66	0.67
Georgia	0.68	45	0.65	0.72	0.64	0.68	0.67
Ghana	0.63	43	0.60	0.65	0.50	0.71	0.78
Hong Kong SAR	0.69	45	0.59	0.73	0.71	0.67	0.66
Hungary	0.60	39	0.49	0.55	0.62	0.72	0.71
Indonesia	0.50	34	0.25	0.57	0.67	0.71	0.58
Iran, Islamic Rep. of	0.62	40	0.49	0.74	0.55	0.71	0.65
Israel	0.71	47	0.54	0.69	0.67	0.76	0.75
Italy	0.77	53	0.75	0.79	0.79	0.62	0.65
Japan	0.80	55	0.66	0.84	0.80	0.72	0.69
Jordan	0.57	37	0.49	0.70	0.59	0.61	0.64
Kazakhstan	0.42	39	0.42	0.63	0.58	0.83	0.36
Korea, Rep. of	0.81	57	0.73	0.77	0.76	0.77	0.73
Lebanon	0.61	39	0.50	0.77	0.64	0.67	0.52
Lithuania	0.57	42	0.70	0.70	0.62	0.63	0.58
Macedonia, Rep. of	0.53	37	0.55	0.51	0.52	0.72	0.70
Malaysia	0.80	55	0.65	0.76	0.73	0.78	0.80

**Exhibit 5: Cronbach's Alpha Reliability Coefficient and Principal Components Analysis of the Items in the TIMSS 2011 Confidence in Teaching Mathematics Scale, Eighth Grade (Continued)**

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Factor Loadings for Each Item				
			BTBM18A	BTBM18B	BTBM18C	BTBM18D	BTBM18E
Morocco	0.71	46	0.67	0.74	0.62	0.71	0.65
New Zealand	0.69	45	0.52	0.67	0.73	0.70	0.72
Norway	0.67	44	0.53	0.72	0.67	0.72	0.66
Oman	0.59	39	0.61	0.64	0.54	0.64	0.67
Palestinian Nat'l Auth.	0.65	42	0.59	0.70	0.64	0.64	0.65
Qatar	0.77	53	0.70	0.73	0.75	0.73	0.71
Romania	0.58	37	0.26	0.55	0.74	0.65	0.73
Russian Federation	0.54	40	0.66	0.79	0.63	0.54	0.53
Saudi Arabia	0.71	47	0.68	0.70	0.58	0.66	0.79
Singapore	0.73	48	0.58	0.72	0.71	0.72	0.72
Slovenia	0.59	38	0.37	0.65	0.61	0.75	0.66
Sweden	0.59	39	0.40	0.59	0.63	0.76	0.68
Syrian Arab Republic	0.60	39	0.57	0.70	0.53	0.75	0.54
Thailand	0.73	49	0.61	0.65	0.76	0.74	0.72
Tunisia	0.67	43	0.58	0.62	0.64	0.77	0.66
Turkey	0.63	41	0.63	0.74	0.44	0.67	0.68
Ukraine	0.44	38	∅	0.51	0.74	0.68	0.52
United Arab Emirates	0.67	44	0.55	0.73	0.69	0.72	0.59
United States	0.69	45	0.55	0.70	0.68	0.70	0.72
<b>Ninth Grade Participants</b>							
Botswana	0.62	41	0.45	0.64	0.66	0.68	0.73
Honduras	0.40	32	0.19	0.04	0.17	0.89	0.88
South Africa	0.74	51	0.65	0.74	0.68	0.75	0.74
<b>Benchmarking Participants</b>							
Alberta, Canada	0.72	48	0.53	0.74	0.66	0.74	0.77
Ontario, Canada	0.80	57	0.72	0.82	0.77	0.74	0.72
Quebec, Canada	0.72	48	0.52	0.74	0.72	0.70	0.75
Abu Dhabi, UAE	0.70	46	0.58	0.75	0.71	0.80	0.51
Dubai, UAE	0.71	47	0.64	0.76	0.70	0.69	0.61
Alabama, US	0.70	47	0.65	0.54	0.77	0.67	0.77
California, US	0.63	42	0.37	0.72	0.63	0.70	0.74
Colorado, US	0.68	44	0.28	0.60	0.74	0.72	0.83
Connecticut, US	0.62	47	∅	0.38	0.69	0.76	0.83
Florida, US	0.59	41	0.65	0.54	0.72	0.54	0.71
Indiana, US	0.62	46	∅	0.42	0.67	0.79	0.78
Massachusetts, US	0.57	37	0.27	0.52	0.69	0.79	0.65
Minnesota, US	0.63	41	0.45	0.69	0.75	0.57	0.72
North Carolina, US	0.67	50	0.72	0.82	0.73	0.63	0.61

∅ No variance among respondents—item excluded from principal components analysis.

**Exhibit 6: Relationship Between the TIMSS 2011 Confidence in Teaching Mathematics Scale, Eighth Grade, and TIMSS 2011 Mathematics Achievement**

Country	Pearson's Correlation with Mathematics Achievement		Variance in Mathematics Achievement Accounted for by Difference Between Regions of the Scale ( $\eta^2$ )
	(r)	(r <sup>2</sup> )	
Armenia	0.14	0.02	0.01
Australia	0.10	0.01	0.00
Bahrain	0.19	0.03	0.02
Chile	-0.01	0.00	0.00
Chinese Taipei	0.10	0.01	0.01
England	0.14	0.02	0.01
Finland	0.04	0.00	0.00
Georgia	0.01	0.00	0.00
Ghana	-0.05	0.00	0.01
Hong Kong SAR	-0.01	0.00	0.00
Hungary	-0.02	0.00	0.00
Indonesia	0.09	0.01	0.00
Iran, Islamic Rep. of	0.14	0.02	0.01
Israel	0.12	0.02	0.01
Italy	0.03	0.00	0.00
Japan	0.06	0.00	0.00
Jordan	0.10	0.01	0.00
Kazakhstan	0.12	0.01	0.00
Korea, Rep. of	0.01	0.00	0.00
Lebanon	0.17	0.03	0.01
Lithuania	0.03	0.00	0.00
Macedonia, Rep. of	0.11	0.01	0.01
Malaysia	0.16	0.03	0.01
Morocco	0.04	0.00	0.00
New Zealand	0.05	0.00	0.00
Norway	-0.04	0.00	0.00
Oman	0.12	0.02	0.01
Palestinian Nat'l Auth.	0.08	0.01	0.00
Qatar	0.26	0.07	0.04
Romania	0.13	0.02	0.01
Russian Federation	0.10	0.01	0.00
Saudi Arabia	0.15	0.02	0.02
Singapore	-0.06	0.00	0.01
Slovenia	-0.01	0.00	0.00
Sweden	0.03	0.00	0.00

**Exhibit 6: Relationship Between the TIMSS 2011 Confidence in Teaching Mathematics Scale, Eighth Grade, and TIMSS 2011 Mathematics Achievement (Continued)**

Country	Pearson's Correlation with Mathematics Achievement		Variance in Mathematics Achievement Accounted for by Difference Between Regions of the Scale ( $\eta^2$ )
	(r)	(r <sup>2</sup> )	
Syrian Arab Republic	0.04	0.00	0.00
Thailand	0.16	0.02	0.03
Tunisia	-0.05	0.00	0.00
Turkey	0.12	0.01	0.01
Ukraine	0.09	0.01	0.00
United Arab Emirates	0.19	0.04	0.03
United States	0.08	0.01	0.00
<b>International Median</b>	<b>0.09</b>	<b>0.01</b>	<b>0.00</b>
<b>Ninth Grade Participants</b>			
Botswana	0.10	0.01	0.01
Honduras	-0.04	0.00	0.00
South Africa	0.09	0.01	0.00
<b>Benchmarking Participants</b>			
Alberta, Canada	0.06	0.00	0.00
Ontario, Canada	0.02	0.00	0.00
Quebec, Canada	0.14	0.02	0.01
Abu Dhabi, UAE	0.22	0.05	0.03
Dubai, UAE	0.26	0.07	0.07
Alabama, US	0.18	0.03	0.02
California, US	0.11	0.01	0.01
Colorado, US	0.17	0.03	0.02
Connecticut, US	0.19	0.04	0.04
Florida, US	0.10	0.01	0.02
Indiana, US	0.07	0.01	0.01
Massachusetts, US	-0.07	0.01	0.01
Minnesota, US	0.17	0.03	0.01
North Carolina, US	-0.08	0.01	0.00