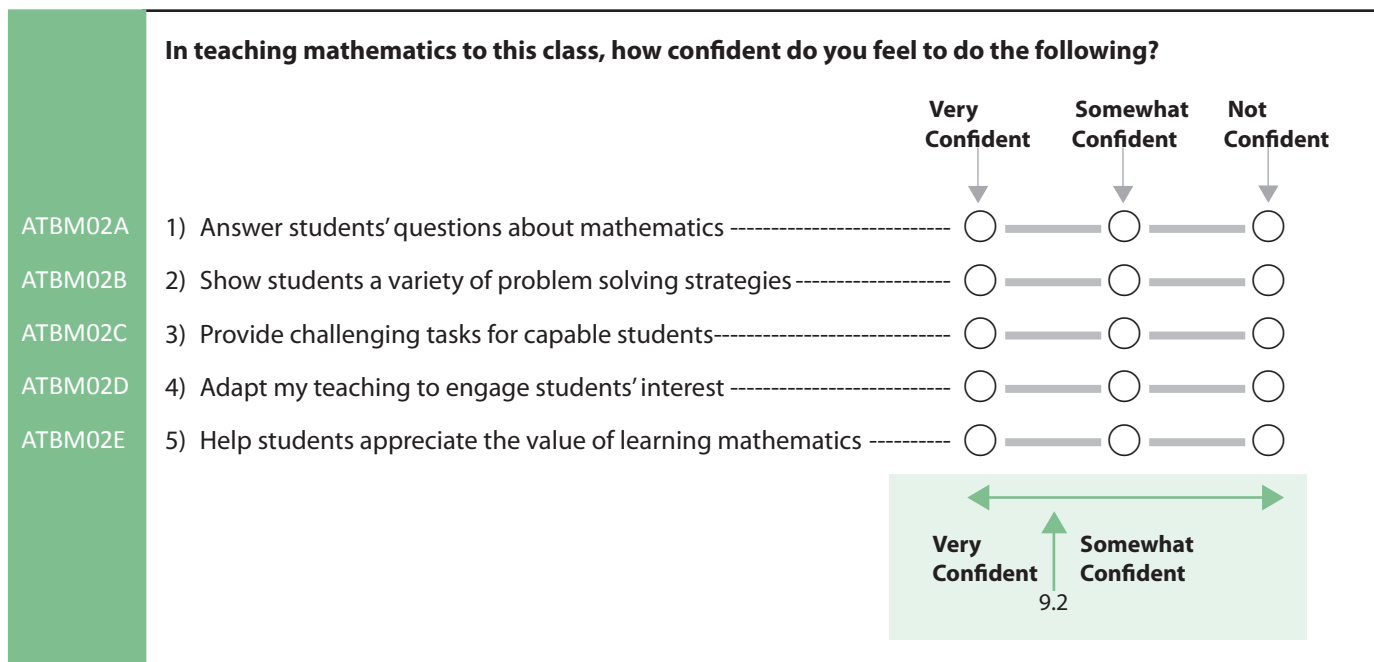


# TIMSS 2011

## The TIMSS 2011 Confidence in Teaching Mathematics Scale, Fourth 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, Fourth Grade**



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

Item	delta
ATBM02A	-2.75048
ATBM02B	-1.91841
ATBM02C	-0.67543
ATBM02D	-1.11487
ATBM02E	-1.41701

<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

$$A = 10.65943$$

$$B = 1.22887$$

$$\text{Transformed Scale Score} = 10.65943 + 1.22887 \cdot \text{Logit Scale Score}$$

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

Raw Score	Transformed Scale Score	Cutpoint
0	5.40756	
1	7.17204	
2	8.26274	
3	9.22771	9.2
4	10.26878	
5	11.96085	

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

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Factor Loadings for Each Item				
			ATBM02A	ATBM02B	ATBM02C	ATBM02D	ATBM02E
Armenia	0.58	38	0.62	0.68	0.57	0.62	0.60
Australia	0.80	56	0.69	0.75	0.77	0.76	0.77
Austria	0.67	44	0.54	0.68	0.69	0.67	0.71
Azerbaijan	0.62	42	0.66	0.64	0.62	0.56	0.75
Bahrain	0.75	50	0.63	0.68	0.73	0.74	0.74
Belgium (Flemish)	0.69	45	0.59	0.72	0.58	0.70	0.76
Chile	0.80	56	0.67	0.79	0.67	0.81	0.81
Chinese Taipei	0.78	54	0.76	0.77	0.72	0.73	0.69
Croatia	0.69	45	0.65	0.72	0.70	0.65	0.65
Czech Republic	0.74	49	0.72	0.77	0.67	0.66	0.69
Denmark	0.66	43	0.55	0.63	0.58	0.78	0.73
England	0.75	50	0.70	0.77	0.74	0.65	0.69
Finland	0.71	47	0.70	0.73	0.78	0.59	0.60
Georgia	0.57	39	0.69	0.69	0.58	0.58	0.55
Germany	0.76	51	0.70	0.75	0.69	0.72	0.71
Hong Kong SAR	0.79	54	0.68	0.75	0.73	0.75	0.77
Hungary	0.76	51	0.68	0.78	0.72	0.73	0.66
Iran, Islamic Rep. of	0.68	44	0.67	0.76	0.47	0.70	0.69
Ireland	0.72	48	0.62	0.72	0.63	0.76	0.73
Italy	0.80	55	0.74	0.77	0.76	0.72	0.72
Japan	0.77	53	0.65	0.81	0.64	0.73	0.78
Kazakhstan	0.62	47	0.62	0.77	0.61	0.58	0.80
Korea, Rep. of	0.74	49	0.65	0.77	0.67	0.72	0.68
Kuwait	0.56	37	0.53	0.75	0.38	0.64	0.68

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

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Factor Loadings for Each Item				
			ATBM02A	ATBM02B	ATBM02C	ATBM02D	ATBM02E
Lithuania	0.74	50	0.76	0.74	0.71	0.64	0.69
Malta	0.78	55	0.71	0.77	0.73	0.81	0.68
Morocco	0.70	46	0.65	0.68	0.56	0.74	0.73
Netherlands	0.62	41	0.71	0.61	0.60	0.62	0.67
New Zealand	0.78	53	0.68	0.73	0.75	0.75	0.73
Northern Ireland	0.76	51	0.56	0.67	0.74	0.85	0.73
Norway	0.67	43	0.50	0.61	0.68	0.76	0.70
Oman	0.60	39	0.42	0.67	0.64	0.64	0.70
Poland	0.56	37	0.52	0.71	0.63	0.61	0.56
Portugal	0.78	55	0.72	0.73	0.77	0.78	0.71
Qatar	0.68	45	0.62	0.76	0.49	0.77	0.67
Romania	0.42	37	∅	0.52	0.65	0.50	0.73
Russian Federation	0.59	44	0.85	0.74	0.60	0.50	0.58
Saudi Arabia	0.63	41	0.51	0.75	0.51	0.65	0.74
Serbia	0.68	45	0.57	0.75	0.53	0.71	0.78
Singapore	0.81	57	0.67	0.80	0.76	0.78	0.76
Slovak Republic	0.71	47	0.64	0.76	0.75	0.62	0.64
Slovenia	0.70	47	0.71	0.73	0.62	0.64	0.71
Spain	0.64	41	0.26	0.69	0.73	0.75	0.64
Sweden	0.71	47	0.60	0.70	0.67	0.73	0.72
Thailand	0.73	49	0.73	0.76	0.63	0.73	0.63
Tunisia	0.73	48	0.61	0.76	0.63	0.78	0.69
Turkey	0.66	43	0.69	0.73	0.47	0.62	0.73
United Arab Emirates	0.64	42	0.56	0.69	0.61	0.69	0.67
United States	0.72	48	0.51	0.70	0.75	0.73	0.74
Yemen	0.61	39	0.50	0.67	0.61	0.71	0.62
<b>Sixth Grade Participants</b>							
Botswana	0.70	47	0.74	0.67	0.54	0.70	0.77
Honduras	0.73	51	0.78	0.79	0.55	0.76	0.67
Yemen	0.56	37	0.54	0.73	0.54	0.63	0.56
<b>Benchmarking Participants</b>							
Alberta, Canada	0.79	55	0.68	0.73	0.75	0.82	0.71
Ontario, Canada	0.74	49	0.65	0.71	0.73	0.74	0.67
Quebec, Canada	0.75	50	0.69	0.71	0.75	0.75	0.65
Abu Dhabi, UAE	0.66	43	0.61	0.71	0.56	0.67	0.71
Dubai, UAE	0.68	44	0.59	0.73	0.67	0.70	0.62
Florida, US	0.70	46	0.51	0.65	0.81	0.64	0.74
North Carolina, US	0.74	51	0.76	0.77	0.65	0.62	0.75

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

**Exhibit 6: Relationship Between the TIMSS 2011 Confidence in Teaching Mathematics Scale, Fourth 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	0.11	0.01	0.01
Australia	0.08	0.01	0.01
Austria	-0.05	0.00	0.00
Azerbaijan	0.04	0.00	0.00
Bahrain	0.16	0.02	0.01
Belgium (Flemish)	0.01	0.00	0.00
Chile	0.14	0.02	0.00
Chinese Taipei	0.03	0.00	0.00
Croatia	-0.02	0.00	0.00
Czech Republic	0.01	0.00	0.00
Denmark	-0.03	0.00	0.00
England	0.08	0.01	0.00
Finland	0.07	0.00	0.00
Georgia	-0.07	0.00	0.01
Germany	0.04	0.00	0.00
Hong Kong SAR	-0.05	0.00	0.00
Hungary	-0.06	0.00	0.00
Iran, Islamic Rep. of	0.06	0.00	0.01
Ireland	0.05	0.00	0.00
Italy	0.04	0.00	0.00
Japan	-0.03	0.00	0.00
Kazakhstan	0.08	0.01	0.01
Korea, Rep. of	0.01	0.00	0.00
Kuwait	0.01	0.00	0.00
Lithuania	0.08	0.01	0.01
Malta	0.01	0.00	0.00
Morocco	0.02	0.00	0.00
Netherlands	-0.02	0.00	0.00
New Zealand	-0.01	0.00	0.00
Northern Ireland	-0.02	0.00	0.00
Norway	0.09	0.01	0.00
Oman	0.10	0.01	0.01
Poland	0.06	0.00	0.00
Portugal	0.04	0.00	0.00
Qatar	0.22	0.05	0.02
Romania	0.06	0.00	0.00
Russian Federation	0.07	0.00	0.00
Saudi Arabia	0.09	0.01	0.00

**Exhibit 6: Relationship Between the TIMSS 2011 Confidence in Teaching Mathematics Scale, Fourth 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> )	
Serbia	0.09	0.01	0.00
Singapore	0.00	0.00	0.00
Slovak Republic	0.02	0.00	0.00
Slovenia	0.02	0.00	0.00
Spain	0.06	0.00	0.00
Sweden	0.04	0.00	0.00
Thailand	0.07	0.00	0.01
Tunisia	0.02	0.00	0.00
Turkey	0.13	0.02	0.00
United Arab Emirates	0.16	0.03	0.01
United States	-0.01	0.00	0.00
Yemen	0.02	0.00	0.00
<b>International Median</b>	<b>0.04</b>	<b>0.00</b>	<b>0.00</b>
<b>Sixth Grade Participants</b>			
Botswana	0.01	0.00	0.00
Honduras	-0.01	0.00	0.00
Yemen	-0.07	0.01	0.00
<b>Benchmarking Participants</b>			
Alberta, Canada	0.06	0.00	0.01
Ontario, Canada	0.08	0.01	0.00
Quebec, Canada	0.02	0.00	0.00
Abu Dhabi, UAE	0.12	0.01	0.00
Dubai, UAE	0.17	0.03	0.00
Florida, US	0.02	0.00	0.00
North Carolina, US	0.03	0.00	0.00