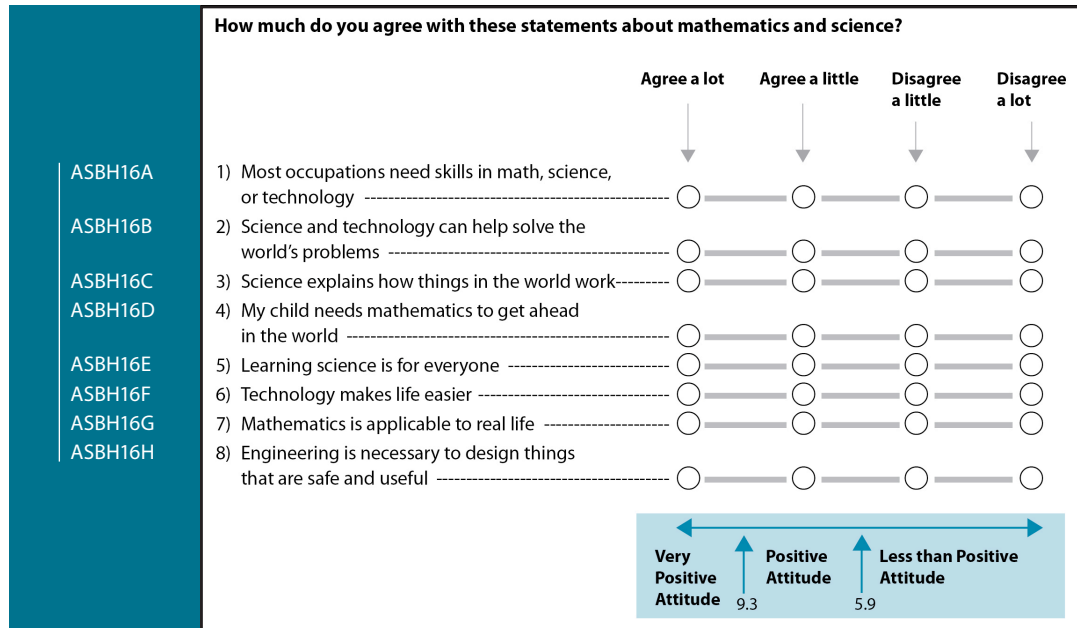


Parental Attitude Toward Mathematics and Science Scale, Fourth Grade

The Parental Attitude Toward Mathematics and Science (AMS) scale was created based on parents' responses to the eight statements described below.

Items in the TIMSS 2015 Parental Attitude Toward Mathematics and Science Scale, Fourth Grade¹



¹ For the purpose of scaling, categories in which there were very few respondents were combined. The categories "Disagree a little" and "Disagree a lot" were combined for all variables. The scale statistics that are reported herein reflect analysis of the items following collapsing.

Item Parameters for the TIMSS 2015 Parental Attitude Towards Mathematics and Science Scale, Fourth Grade

Item	delta	tau_1	tau_2	Infit
ASBH16A	-0.13348	-1.30430	1.30430	1.06
ASBH16B	0.46466	-1.45183	1.45183	1.02
ASBH16C	-0.14365	-1.51755	1.51755	0.98
ASBH16D	0.26093	-1.15860	1.15860	0.98
ASBH16E	0.49246	-1.14023	1.14023	1.07
ASBH16F	-0.23279	-1.41401	1.41401	1.07
ASBH16G	-0.42471	-1.32106	1.32106	0.97
ASBH16H	-0.28342	-1.41733	1.41733	1.02

Scale Transformation Constants for the TIMSS 2015 Parental Attitude Towards Mathematics and Science Scale, Fourth Grade

Scale Transformation Constants	
A = 7.585537	Transformed Scale Score = 7.585537 + 1.203307 • Logit Scale Score
B = 1.203307	

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

**Equivalence Table of Raw and Transformed Scale Scores for the TIMSS
2015 Parental Attitude Towards Mathematics and Science Scale, Fourth
Grade**

Raw Score	Transformed Scale Score	Cutpoint
0	2.47515	
1	3.94784	
2	4.73109	
3	5.31751	
4	5.81902	5.9
5	6.28412	
6	6.72991	
7	7.16815	
8	7.60318	
9	8.03458	
10	8.46408	
11	8.89768	
12	9.34946	9.3
13	9.84146	
14	10.41768	
15	11.19234	
16	12.66016	

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 Parental Attitude Towards Mathematics and Science Scale, Fourth Grade

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Component Loadings for Each Item							
			ASBH16A	ASBH16B	ASBH16C	ASBH16D	ASBH16E	ASBH16F	ASBH16G	ASBH16H
Australia	0.81	44	0.58	0.70	0.67	0.71	0.71	0.57	0.68	0.67
Bahrain	0.80	41	0.58	0.69	0.66	0.69	0.65	0.53	0.68	0.64
Belgium (Flemish)	0.84	47	0.61	0.69	0.68	0.75	0.67	0.67	0.71	0.69
Bulgaria	0.85	49	0.71	0.72	0.72	0.73	0.66	0.62	0.73	0.71
Canada	0.83	47	0.63	0.71	0.72	0.72	0.66	0.61	0.72	0.69
Chile	0.80	42	0.42	0.68	0.71	0.70	0.67	0.62	0.65	0.66
Chinese Taipei	0.87	53	0.72	0.77	0.77	0.67	0.73	0.73	0.73	0.70
Croatia	0.80	42	0.59	0.65	0.66	0.74	0.55	0.58	0.70	0.66
Cyprus	0.75	38	0.60	0.68	0.69	0.63	0.50	0.55	0.64	0.61
Czech Republic	0.82	45	0.66	0.68	0.67	0.70	0.70	0.63	0.64	0.68
Denmark	0.77	40	0.62	0.66	0.66	0.71	0.50	0.60	0.64	0.63
England	-	-	-	-	-	-	-	-	-	-
Finland	0.83	46	0.66	0.70	0.67	0.73	0.72	0.58	0.70	0.67
France	0.84	48	0.69	0.73	0.68	0.70	0.72	0.62	0.70	0.69
Georgia	0.80	42	0.54	0.58	0.65	0.70	0.67	0.69	0.70	0.63
Germany	0.80	42	0.60	0.60	0.63	0.70	0.63	0.67	0.69	0.65
Hong Kong SAR	0.83	47	0.67	0.72	0.72	0.68	0.69	0.66	0.65	0.69
Hungary	0.79	42	0.63	0.69	0.68	0.69	0.68	0.62	0.67	0.50
Indonesia	0.83	46	0.59	0.72	0.73	0.68	0.65	0.70	0.67	0.71
Iran, Islamic Rep. of	0.79	41	0.60	0.65	0.65	0.68	0.64	0.59	0.70	0.59
Ireland	0.79	42	0.57	0.68	0.65	0.71	0.64	0.58	0.70	0.63
Italy	0.80	42	0.58	0.69	0.67	0.69	0.54	0.62	0.67	0.69
Japan	0.85	49	0.66	0.73	0.71	0.73	0.76	0.66	0.65	0.70
Jordan	0.81	44	0.60	0.68	0.70	0.71	0.60	0.62	0.68	0.69
Kazakhstan	0.78	40	0.62	0.69	0.64	0.63	0.57	0.62	0.61	0.64
Korea, Rep. of	0.87	53	0.65	0.76	0.74	0.73	0.78	0.69	0.70	0.77
Kuwait	0.81	43	0.59	0.68	0.70	0.72	0.65	0.59	0.68	0.64
Lithuania	0.76	38	0.62	0.65	0.62	0.64	0.50	0.62	0.64	0.64
Morocco	0.84	47	0.63	0.71	0.70	0.70	0.65	0.70	0.68	0.71
Netherlands	0.80	43	0.65	0.67	0.70	0.69	0.51	0.61	0.71	0.71
New Zealand	0.83	46	0.64	0.73	0.67	0.74	0.70	0.56	0.72	0.67
Northern Ireland	0.81	43	0.59	0.71	0.65	0.65	0.68	0.62	0.69	0.67
Norway (5)	0.81	44	0.62	0.69	0.69	0.70	0.65	0.65	0.63	0.64
Oman	0.77	39	0.56	0.66	0.63	0.65	0.62	0.57	0.65	0.62
Poland	0.83	47	0.67	0.72	0.64	0.69	0.67	0.70	0.69	0.68
Portugal	0.76	38	0.48	0.64	0.66	0.62	0.57	0.58	0.65	0.68
Qatar	0.84	47	0.60	0.70	0.73	0.72	0.69	0.65	0.70	0.67
Russian Federation	0.82	44	0.64	0.70	0.67	0.71	0.69	0.59	0.66	0.67
Saudi Arabia	0.84	47	0.59	0.72	0.70	0.73	0.67	0.65	0.71	0.71
Serbia	0.84	48	0.65	0.72	0.73	0.75	0.63	0.62	0.70	0.71
Singapore	0.86	50	0.68	0.73	0.72	0.72	0.72	0.66	0.72	0.71
Slovak Republic	0.82	44	0.65	0.67	0.67	0.72	0.66	0.61	0.68	0.64
Slovenia	0.85	50	0.70	0.73	0.72	0.73	0.63	0.66	0.70	0.76
South Africa (5)	0.83	46	0.64	0.72	0.70	0.70	0.60	0.69	0.71	0.69
Spain	0.80	42	0.59	0.70	0.71	0.69	0.55	0.62	0.66	0.67
Sweden	0.82	45	0.60	0.70	0.70	0.72	0.61	0.69	0.64	0.70
Turkey	0.81	44	0.64	0.68	0.67	0.70	0.67	0.61	0.68	0.64
United Arab Emirates	0.85	49	0.65	0.71	0.73	0.71	0.71	0.65	0.73	0.67
United States	-	-	-	-	-	-	-	-	-	-
Benchmarking Participants										
Buenos Aires, Argentina	0.80	42	0.70	0.59	0.63	0.71	0.59	0.58	0.73	0.65
Ontario, Canada	0.82	45	0.57	0.70	0.68	0.72	0.67	0.62	0.71	0.64
Quebec, Canada	0.84	48	0.62	0.73	0.73	0.73	0.60	0.64	0.72	0.74
Norway (4)	0.81	44	0.66	0.72	0.69	0.72	0.65	0.60	0.61	0.65
Abu Dhabi, UAE	0.87	52	0.67	0.72	0.76	0.72	0.74	0.68	0.75	0.71
Dubai, UAE	0.83	45	0.62	0.68	0.72	0.72	0.69	0.60	0.70	0.65
Florida, US	-	-	-	-	-	-	-	-	-	-

A dash (-) indicates comparable data not available.

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

Relationship Between the TIMSS 2015 Parental Attitude Towards Mathematics and Science 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)		Mathematics	Science
	Mathematics	Science	Mathematics	Science		
Australia	0.15	0.13	0.02	0.02	0.02	0.02
Bahrain	0.13	0.17	0.02	0.03	0.01	0.02
Belgium (Flemish)	0.08	0.08	0.01	0.01	0.01	0.01
Bulgaria	0.08	0.10	0.01	0.01	0.01	0.02
Canada	0.10	0.13	0.01	0.02	0.01	0.01
Chile	0.09	0.06	0.01	0.00	0.00	0.00
Chinese Taipei	0.09	0.10	0.01	0.01	0.01	0.01
Croatia	0.06	0.05	0.00	0.00	0.01	0.00
Cyprus	0.03	0.04	0.00	0.00	0.00	0.00
Czech Republic	0.05	0.06	0.00	0.00	0.00	0.00
Denmark	0.09	0.08	0.01	0.01	0.01	0.01
England	-	-	-	-	-	-
Finland	0.17	0.16	0.03	0.03	0.02	0.02
France	0.16	0.15	0.03	0.02	0.02	0.02
Georgia	0.02	0.05	0.00	0.00	0.00	0.00
Germany	0.07	0.06	0.00	0.00	0.00	0.00
Hong Kong SAR	0.15	0.18	0.02	0.03	0.02	0.02
Hungary	0.08	0.07	0.01	0.00	0.01	0.01
Indonesia	0.02	0.05	0.00	0.00	0.00	0.00
Iran, Islamic Rep. of	0.10	0.12	0.01	0.01	0.01	0.01
Ireland	0.13	0.12	0.02	0.01	0.01	0.01
Italy	0.04	0.03	0.00	0.00	0.00	0.00
Japan	0.17	0.18	0.03	0.03	0.03	0.03
Jordan	0.18	-	0.03	-	0.03	-
Kazakhstan	0.01	-0.02	0.00	0.00	0.00	0.00
Korea, Rep. of	0.20	0.18	0.04	0.03	0.03	0.03
Kuwait	0.13	0.14	0.02	0.02	0.02	0.02
Lithuania	0.06	0.02	0.00	0.00	0.01	0.00
Morocco	0.10	0.12	0.01	0.02	0.01	0.02
Netherlands	0.17	0.20	0.03	0.04	0.02	0.04
New Zealand	0.16	0.15	0.03	0.02	0.02	0.02
Northern Ireland	0.08	0.10	0.01	0.01	0.00	0.01
Norway (5)	0.14	0.15	0.02	0.02	0.01	0.01
Oman	0.11	0.13	0.01	0.02	0.01	0.01
Poland	0.13	0.14	0.02	0.02	0.02	0.02
Portugal	0.08	0.11	0.01	0.01	0.00	0.01
Qatar	0.19	0.18	0.03	0.03	0.03	0.02
Russian Federation	-0.01	-0.02	0.00	0.00	0.00	0.00
Saudi Arabia	0.07	0.07	0.01	0.01	0.01	0.01
Serbia	0.04	0.05	0.00	0.00	0.01	0.01
Singapore	0.13	0.13	0.02	0.02	0.01	0.02
Slovak Republic	-0.05	-0.06	0.00	0.00	0.00	0.00
Slovenia	0.10	0.10	0.01	0.01	0.01	0.01
South Africa (5)	0.04	-	0.00	-	0.00	-
Spain	0.10	0.10	0.01	0.01	0.01	0.01
Sweden	0.14	0.14	0.02	0.02	0.02	0.02
Turkey	0.07	0.07	0.00	0.00	0.01	0.01
United Arab Emirates	0.20	0.23	0.04	0.05	0.04	0.05
United States	-	-	-	-	-	-
International Median	0.10	0.10	0.01	0.01	0.01	0.01
Benchmarking Participants						
Buenos Aires, Argentina	0.16	0.08	0.02	0.01	0.01	0.01
Ontario, Canada	0.14	0.12	0.02	0.01	0.01	0.01
Quebec, Canada	0.16	0.14	0.02	0.02	0.02	0.01
Norway (4)	0.06	0.15	0.00	0.02	0.00	0.02
Abu Dhabi, UAE	0.22	0.25	0.05	0.06	0.05	0.06
Dubai, UAE	0.15	0.18	0.02	0.03	0.02	0.03
Florida, US	-	-	-	-	-	-

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

A dash (-) indicates comparable data not available.