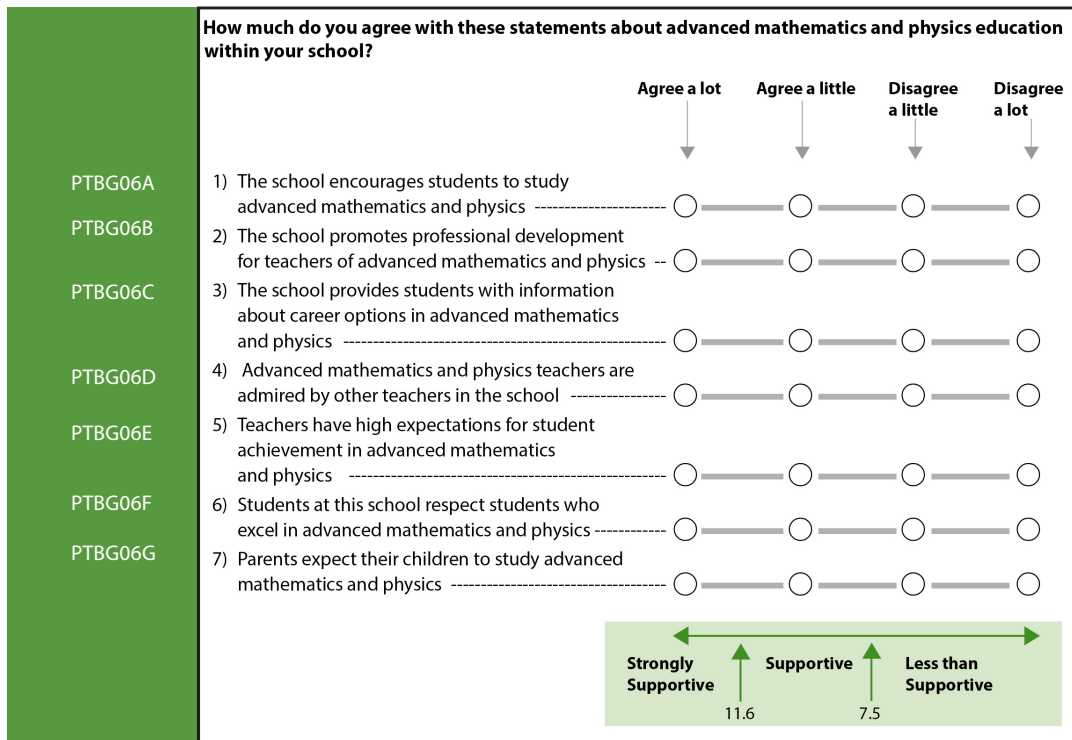


School Supports Advanced Mathematics and Physics Education—Teacher Version Scale, Physics

The School Supports Advanced Mathematics and Physics Education—Teacher Version (SMP) scale was created based on teachers’ responses characterizing the seven aspects described below.

Items in the TIMSS Advanced 2015 School Supports Advanced Mathematics and Physics Education—Teacher Version Scale, Physics¹



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 Advanced 2015 School Supports Advanced Mathematics and Physics Education - Teacher Version Scale, Physics

Item	delta	tau_1	tau_2	Infit
PTBG06A	-0.69327	-1.09016	1.09016	0.87
PTBG06B	0.42027	-0.81515	0.81515	1.05
PTBG06C	-0.23350	-1.24334	1.24334	0.96
PTBG06D	0.88624	-0.64947	0.64947	0.99
PTBG06E	-0.40883	-1.40288	1.40288	0.93
PTBG06F	-0.39632	-1.00752	1.00752	1.16
PTBG06G	0.42541	-1.28652	1.28652	1.01

Scale Transformation Constants for the TIMSS Advanced 2015 School Supports Advanced Mathematics and Physics Education - Teacher Version Scale, Physics

Scale Transformation Constants	
A = 9.52146	Transformed Scale Score = 9.52146 + 1.382519 • Logit Scale Score
B = 1.382519	

Equivalence Table of the Raw Score and the Transformed Scale Score for the TIMSS Advanced 2015 School Supports Advanced Mathematics and Physics Education - Teacher Version Scale, Physics

Raw Score	Transformed Scale Score	Cutpoint
0	4.00781	
1	5.74570	
2	6.68506	
3	7.40122	7.5
4	8.01543	
5	8.57240	
6	9.09310	
7	9.58929	
8	10.07291	
9	10.56143	
10	11.06907	
11	11.62470	11.6
12	12.28126	
13	13.16777	
14	14.85545	

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

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 Advanced 2015 School Supports Advanced Mathematics and Physics Education - Teacher Version Scale, Physics

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Component Loadings for Each Item						
			PTB606A	PTB606B	PTB606C	PTB606D	PTB606E	PTB606F	PTB606G
France	0.63	32	0.56	0.47	0.42	0.51	0.65	0.66	0.62
Italy	0.78	44	0.72	0.60	0.70	0.64	0.73	0.51	0.70
Lebanon	0.77	43	0.64	0.73	0.65	0.51	0.68	0.65	0.71
Norway	0.60	31	0.69	0.38	0.62	0.66	0.52	0.60	0.26
Portugal	0.72	38	0.71	0.71	0.66	0.48	0.51	0.61	0.57
Russian Federation	0.77	44	0.76	0.79	0.65	0.61	0.54	0.73	0.48
Slovenia	0.70	36	0.71	0.70	0.57	0.69	0.65	0.38	0.40
Sweden	0.70	35	0.73	0.70	0.56	0.47	0.57	0.57	0.51
United States	0.84	51	0.66	0.80	0.78	0.69	0.68	0.58	0.80
International Avg.	0.72	39	0.69	0.65	0.62	0.58	0.62	0.59	0.56

Relationship Between the TIMSS Advanced 2015 School Supports Advanced Mathematics and Physics Education - Teacher Version Scale, and TIMSS Advanced 2015 Physics Achievement

Country	Pearson's Correlation with Physics Achievement		Variance in Physics Achievement Accounted for by Difference Between Regions of the Scale (η^2)
	(r)	(r ²)	
France	0.05	0.00	0.00
Italy	-0.01	0.00	0.00
Lebanon	-0.03	0.00	0.00
Norway	0.02	0.00	0.00
Portugal	0.01	0.00	0.01
Russian Federation	0.08	0.01	0.02
Slovenia	0.23	0.05	0.03
Sweden	0.10	0.01	0.00
United States	0.23	0.05	0.01
International Median	0.05	0.00	0.00

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