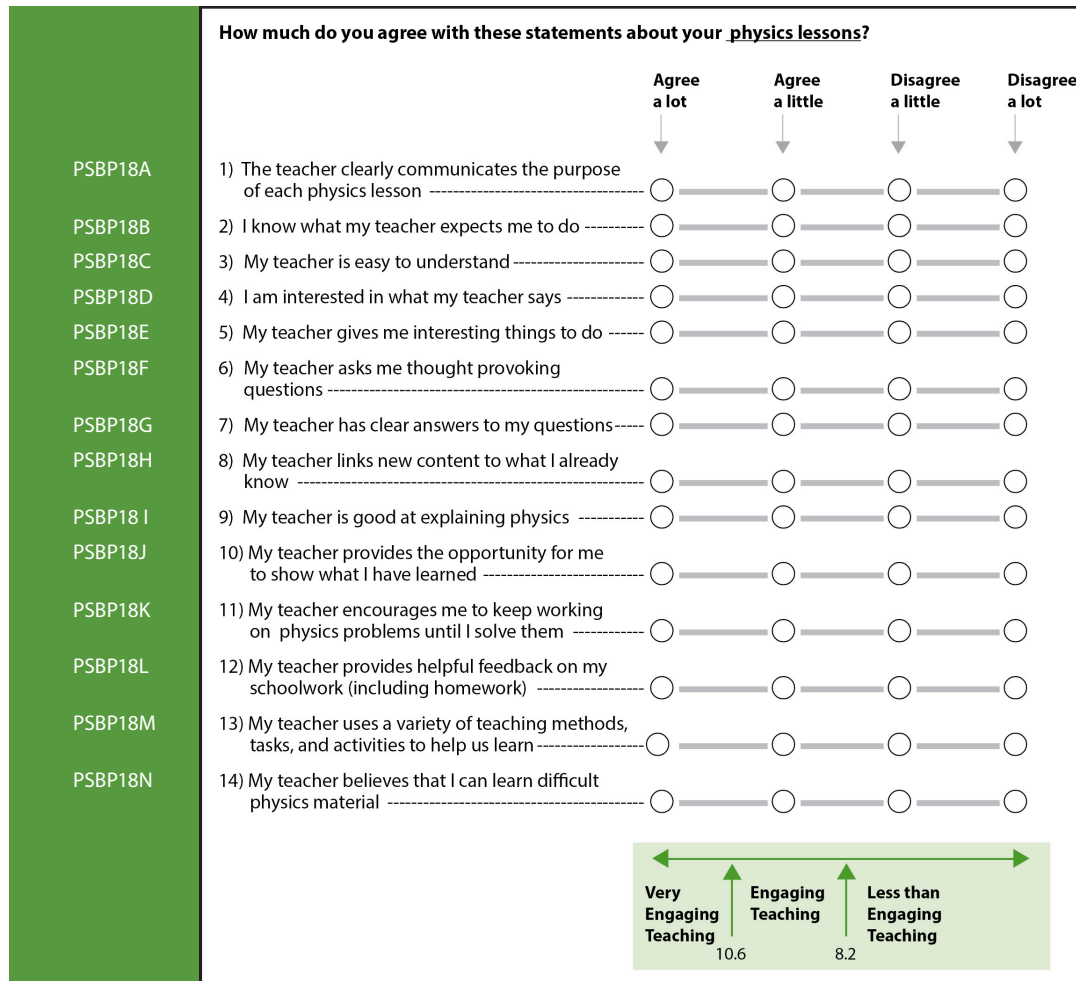


Students' Views on Engaging Teaching in Physics Lessons Scale

The Students' Views on Engaging Teaching in Physics Lessons (EPL) scale was created based on students' degree of agreement with the fourteen statements described below.

Items in the TIMSS Advanced 2015 Students' Views on Engaging Teaching in Physics Lessons Scale



Item Parameters for the TIMSS Advanced 2015 Students' Views on Engaging Teaching in Physics Lessons Scale, Physics

Item	delta	tau_1	tau_2	tau_3	Infit
PSBP18A	-0.14831	-1.38275	-0.35811	1.74086	0.87
PSBP18B	-0.43649	-1.60005	-0.45229	2.05234	1.13
PSBP18C	0.13061	-1.48920	-0.24496	1.73416	0.83
PSBP18D	-0.05456	-1.45103	-0.42519	1.87622	1.16
PSBP18E	0.63636	-1.76934	-0.24144	2.01078	1.02
PSBP18F	0.13739	-1.39531	-0.27005	1.66536	1.13
PSBP18G	0.14795	-1.29217	-0.29296	1.58513	0.95
PSBP18H	-0.32221	-1.50071	-0.42276	1.92347	1.00
PSBP18I	-0.19384	-1.15279	-0.30087	1.45366	0.79
PSBP18J	-0.27918	-1.98442	-0.36623	2.35065	1.06
PSBP18K	-0.01635	-1.57874	-0.18354	1.76228	1.16
PSBP18L	0.36382	-1.67707	-0.16971	1.84678	1.10
PSBP18M	0.21519	-1.60597	-0.15229	1.75826	1.13
PSBP18N	-0.18038	-1.41620	-0.42459	1.84079	1.34

Scale Transformation Constants for the TIMSS Advanced 2015 Students' Views on Engaging Teaching in Physics Lessons Scale, Physics

Scale Transformation Constants

A = 8.247393

B = 1.153149

Transformed Scale Score = 8.247393 + 1.153149 • Logit Scale Score

**Equivalence Table of the Raw Score and the Transformed Scale Score
for the TIMSS Advanced 2015 Students' Views on Engaging Teaching in
Physics Lessons Scale, Physics**

Raw Score	Transformed Scale Score	Cutpoint
0	2.56831	
1	3.87485	
2	4.50403	
3	4.93321	
4	5.26459	
5	5.53959	
6	5.77697	
7	5.98812	
8	6.18044	
9	6.35812	
10	6.52518	
11	6.68393	
12	6.83632	
13	6.98389	
14	7.12790	
15	7.26945	
16	7.40948	
17	7.54955	
18	7.68865	
19	7.82857	
20	7.96996	
21	8.11342	8.2
22	8.25966	
23	8.40883	
24	8.56179	
25	8.71883	
26	8.88033	
27	9.04665	
28	9.21823	
29	9.39540	
30	9.57861	
31	9.76853	
32	9.96608	
33	10.17267	
34	10.39036	
35	10.62218	10.6
36	10.87268	
37	11.14749	
38	11.45962	
39	11.82813	
40	12.29340	
41	12.95657	
42	14.29669	

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 Students' Views on Engaging Teaching in Physics Lessons Scale, Physics

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Component Loadings for Each Item													
			P3BP18A	P3BP18B	P3BP18C	P3BP18D	P3BP18E	P3BP18F	P3BP18G	P3BP18H	P3BP18I	P3BP18J	P3BP18K	P3BP18L	P3BP18M	P3BP18N
France	0.92	49	0.76	0.68	0.79	0.62	0.68	0.65	0.77	0.69	0.82	0.63	0.66	0.67	0.69	0.66
Italy	0.93	52	0.82	0.57	0.82	0.54	0.65	0.74	0.79	0.72	0.84	0.72	0.73	0.77	0.74	0.53
Lebanon	0.93	54	0.80	0.60	0.79	0.74	0.74	0.71	0.79	0.76	0.81	0.74	0.73	0.66	0.76	0.64
Norway	0.91	46	0.72	0.71	0.79	0.60	0.71	0.53	0.72	0.72	0.77	0.68	0.53	0.70	0.61	0.58
Portugal	0.94	55	0.82	0.67	0.83	0.64	0.76	0.65	0.81	0.76	0.84	0.72	0.75	0.71	0.73	0.60
Russian Federation	0.92	51	0.78	0.64	0.77	0.78	0.77	0.58	0.77	0.63	0.81	0.63	0.67	0.79	0.73	0.58
Slovenia	0.92	51	0.78	0.75	0.78	0.61	0.72	0.72	0.72	0.75	0.81	0.64	0.64	0.69	0.68	0.62
Sweden	0.92	50	0.75	0.65	0.82	0.66	0.75	0.70	0.75	0.74	0.83	0.66	0.66	0.69	0.65	0.58
United States	0.94	55	0.81	0.73	0.81	0.71	0.75	0.74	0.79	0.77	0.83	0.71	0.65	0.76	0.73	0.60
International Avg.	0.93	51	0.78	0.67	0.80	0.65	0.73	0.67	0.77	0.73	0.82	0.68	0.67	0.72	0.70	0.60

Relationship Between the TIMSS Advanced 2015 Students' Views on Engaging Teaching in Physics Lessons 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	0.24	0.06	0.05
Italy	0.12	0.01	0.01
Lebanon	0.08	0.01	0.02
Norway	0.25	0.06	0.06
Portugal	0.04	0.00	0.00
Russian Federation	0.20	0.04	0.04
Slovenia	0.31	0.10	0.10
Sweden	0.24	0.06	0.06
United States	0.16	0.03	0.04
International Median	0.20	0.04	0.04

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