

# Students' Sense of School Belonging Scale, Physics

The Students' Sense of School Belonging (SSB) scale was created based on students' degree of agreement with the nine statements described below.

## Items in the TIMSS Advanced 2015 Students' Sense of School Belonging Scale, Physics

What do you think about your school? Tell how much you agree with these statements.

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
PSBP22A 1) I enjoy school-----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PSBP22B 2) I feel safe when I am at school -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PSBP22C 3) I feel like I belong at this school -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PSBP22D 4) I like to see my classmates at school -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PSBP22E 5) Teachers at my school are fair to me -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PSBP22F 6) I am proud to go to this school -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PSBP22G 7) I learn a lot in school -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PSBP22H 8) My classmates respect students who excel in school subjects -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PSBP22 I 9) My classmates respect students who struggle learning school subjects -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

High Sense of School Belonging 10.5    Sense of School Belonging 7.6    Little Sense of School Belonging

**Item Parameters for the TIMSS Advanced 2015 Students' Sense of School Belonging Scale, Physics**

Item	delta	tau_1	tau_2	tau_3	Infit
PSBP22A	0.42482	-1.13862	-0.66108	1.79970	1.06
PSBP22B	-0.19651	-0.90823	-0.65897	1.56720	0.94
PSBP22C	0.27155	-1.09791	-0.37350	1.47141	0.87
PSBP22D	-0.77499	-0.66078	-0.69906	1.35984	1.04
PSBP22E	0.02649	-1.36739	-0.55367	1.92106	1.10
PSBP22F	0.36287	-1.16971	-0.42176	1.59147	0.93
PSBP22G	-0.30178	-1.41507	-0.65833	2.07340	0.98
PSBP22H	-0.08185	-1.20393	-0.55128	1.75521	1.09
PSBP22I	0.26940	-1.37985	-0.44086	1.82071	1.29

**Scale Transformation Constants for the TIMSS Advanced 2015 Students' Sense of School Belonging Scale, Physics**

Scale Transformation Constants

A = 7.921577

B = 1.242992

Transformed Scale Score = 7.921577 + 1.242992 • Logit Scale Score

**Equivalence Table of the Raw Score and the Transformed Scale Score for the TIMSS Advanced 2015 Students' Sense of School Belonging Scale, Physics**

Raw Score	Transformed Scale Score	Cutpoint
0	2.83834	
1	4.17439	
2	4.80361	
3	5.23192	
4	5.56897	
5	5.85267	
6	6.10445	
7	6.33561	
8	6.55328	
9	6.76244	
10	6.96690	
11	7.16980	
12	7.37399	
13	7.58285	7.6
14	7.79734	
15	8.02192	
16	8.25960	
17	8.51313	
18	8.78559	
19	9.07945	
20	9.39640	
21	9.73823	
22	10.10871	
23	10.51544	10.5
24	10.97845	
25	11.53918	
26	12.31006	
27	13.80166	

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

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**Cronbach's Alpha Reliability Coefficient and Principal Components Analysis of the Items in the TIMSS Advanced 2015 Students' Sense of School Belonging Scale, Physics**

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Component Loadings for Each Item									
			PSBP22A	PSBP22B	PSBP22C	PSBP22D	PSBP22E	PSBP22F	PSBP22G	PSBP22H	PSBP22I	
France	0.82	42	0.72	0.68	0.69	0.59	0.54	0.73	0.65	0.59	0.58	
Italy	0.83	43	0.73	0.73	0.76	0.51	0.64	0.79	0.68	0.51	0.48	
Lebanon	0.87	49	0.68	0.78	0.80	0.64	0.65	0.76	0.70	0.66	0.61	
Norway	0.83	44	0.70	0.69	0.79	0.65	0.56	0.71	0.64	0.62	0.56	
Portugal	0.83	43	0.74	0.68	0.74	0.55	0.56	0.78	0.67	0.60	0.57	
Russian Federation	0.89	54	0.79	0.74	0.79	0.70	0.66	0.81	0.72	0.67	0.70	
Slovenia	0.86	47	0.69	0.67	0.80	0.60	0.67	0.81	0.77	0.62	0.50	
Sweden	0.85	47	0.80	0.69	0.80	0.67	0.58	0.76	0.69	0.56	0.58	
United States	0.87	49	0.67	0.69	0.79	0.68	0.64	0.79	0.71	0.71	0.62	
International Avg.	0.85	47	0.73	0.70	0.77	0.62	0.61	0.77	0.69	0.62	0.58	

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

**Relationship Between the TIMSS Advanced 2015 Students' Sense of School Belonging 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 ( $\eta^2$ )
	(r)	(r <sup>2</sup> )	
France	0.25	0.06	0.05
Italy	0.06	0.00	0.01
Lebanon	0.02	0.00	0.00
Norway	0.16	0.03	0.03
Portugal	0.11	0.01	0.02
Russian Federation	0.07	0.01	0.00
Slovenia	0.22	0.05	0.05
Sweden	0.19	0.04	0.05
United States	0.09	0.01	0.01
International Median	0.11	0.01	0.02