

# Safe and Orderly School-Teachers' Reports Scale, Advanced Mathematics

The Safe and Orderly School-Teachers' Reports (SOS) scale was created based on teachers' degree of agreement with the eight statements described below.

## Items in the TIMSS Advanced 2015 Safe and Orderly School-Teachers' Reports Scale, Advanced Mathematics<sup>1</sup>

Thinking about your current school, indicate the extent to which you agree or disagree with each of the following statements.

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
MTBG07A 1) This school is located in a safe neighborhood -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MTBG07B 2) I feel safe at this school -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MTBG07C 3) This school's security policies and practices are sufficient -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MTBG07D 4) The students behave in an orderly manner -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MTBG07E 5) The students are respectful of the teachers -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MTBG07F 6) The students respect school property -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MTBG07G 7) This school has clear rules about student conduct -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MTBG07H 8) This school's rules are enforced in a fair and consistent manner -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Very Safe and Orderly    9.9    Safe and Orderly    6.5    Less than Safe and Orderly

<sup>1</sup> 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 Safe and Orderly Schools - Teachers' Reports Scale, Advanced Mathematics**

Item	delta	tau_1	tau_2	Infit
MTBG07A	-0.82109	-1.51458	1.51458	1.15
MTBG07B	-1.74585	-1.72523	1.72523	0.92
MTBG07C	-0.33658	-1.56042	1.56042	1.04
MTBG07D	0.39769	-1.95319	1.95319	0.83
MTBG07E	0.19117	-2.14541	2.14541	0.85
MTBG07F	1.15478	-2.08336	2.08336	0.94
MTBG07G	0.17538	-1.48879	1.48879	1.10
MTBG07H	0.98450	-1.53824	1.53824	1.05

**Scale Transformation Constants for the TIMSS Advanced 2015 Safe and Orderly Schools - Teachers' Reports Scale, Advanced Mathematics**

Scale Transformation Constants

$$A = 8.173896$$

$$B = 0.95666$$

$$\text{Transformed Scale Score} = 8.173896 + 0.95666 \cdot \text{Logit Scale Score}$$

**Equivalence Table of the Raw Score and the Transformed Scale Score for the TIMSS Advanced 2015 Safe and Orderly Schools - Teachers' Reports Scale, Advanced Mathematics**

Raw Score	Transformed Scale Score	Cutpoint
0	3.37625	
1	4.67674	
2	5.40155	
3	5.94826	
4	6.41573	6.5
5	6.84650	
6	7.26412	
7	7.68378	
8	8.11417	
9	8.55968	
10	9.01824	
11	9.48591	
12	9.96410	9.9
13	10.46579	
14	11.02538	
15	11.73354	
16	12.98778	

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 Safe and Orderly Schools - Teachers' Reports Scale, Advanced Mathematics**

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Component Loadings for Each Item							
			MTBG007A	MTBG007B	MTBG007C	MTBG007D	MTBG007E	MTBG007F	MTBG007G	MTBG007H
France	0.90	59	0.70	0.71	0.78	0.84	0.80	0.71	0.77	0.79
Italy	0.85	49	0.60	0.67	0.69	0.81	0.79	0.75	0.57	0.68
Lebanon	0.84	48	0.50	0.62	0.56	0.71	0.74	0.74	0.80	0.82
Norway	0.84	48	0.50	0.64	0.52	0.74	0.77	0.80	0.76	0.75
Portugal	0.88	54	0.62	0.68	0.81	0.80	0.77	0.75	0.70	0.75
Russian Federation	0.83	47	0.50	0.69	0.74	0.83	0.81	0.68	0.73	0.43
Russian Federation 6hr+	0.78	41	0.70	0.55	0.59	0.76	0.72	0.62	0.70	0.41
Slovenia	0.91	61	0.74	0.75	0.83	0.79	0.82	0.78	0.75	0.80
Sweden	0.80	43	0.50	0.54	0.63	0.83	0.76	0.76	0.51	0.66
United States	0.90	61	0.54	0.70	0.81	0.85	0.85	0.86	0.78	0.83
International Avg.	0.86	52	0.58	0.67	0.71	0.80	0.79	0.76	0.71	0.72

**Relationship Between the TIMSS Advanced 2015 Safe and Orderly Schools - Teachers' Reports Scale, and TIMSS Advanced 2015 Advanced Mathematics Achievement**

Country	Pearson's Correlation with Advanced Mathematics Achievement		Variance in Advanced Mathematics Achievement Accounted for by Difference Between Regions of the Scale ( $\eta^2$ )
	(r)	(r <sup>2</sup> )	
France	0.16	0.02	0.02
Italy	0.07	0.00	0.03
Lebanon	0.13	0.02	0.00
Norway	0.07	0.01	0.01
Portugal	0.04	0.00	0.00
Russian Federation	0.14	0.02	0.03
Russian Federation 6hr+	0.17	0.03	0.05
Slovenia	0.17	0.03	0.03
Sweden	0.08	0.01	0.01
United States	0.03	0.00	0.02
International Median	0.08	0.01	0.02

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