

Exhibit 11.1: Example International Item Statistics for a TIMSS Advanced 2015 Multiple-Choice Item

Trends in International Mathematics and Science Study - TIMSS Advanced 2015 Assessment Results - Physics  
International Item Review Statistics (Unweighted)  
Physics: Mechanics & Thermodynamics / Knowing (P4\_02 - PA33088) Type: MC Key: A  
Label: Force of Sun on two Planets

Country	Cases	Percentages										Point Biserials										Flags
		DIFF	DISC	P_A	P_B	P_C	P_D	P_E	P_OM	P_NR	PB_A	PB_B	PB_C	PB_D	PB_E	PB_OM	PB_NR	RDIFF				
France	1323	28.7	0.49	28.7	49.9	9.1	12.0	.	0.3	0.0	0.49	-0.25	-0.13	-0.18	.	-0.00	.	0.21	H F			
Italy	1148	55.2	0.55	55.2	33.4	2.6	7.1	.	1.7	0.2	0.55	-0.39	-0.14	-0.20	.	-0.10	-0.04	-1.02	E F			
Lebanon	386	25.6	0.53	25.6	41.5	11.5	15.7	.	5.7	0.8	0.53	-0.16	-0.17	-0.21	.	-0.08	-0.09	0.51	H			
Norway	831	65.8	0.36	65.8	25.2	4.7	3.0	.	1.3	0.0	0.36	-0.25	-0.13	-0.14	.	-0.11	.	-0.57	F			
Portugal	590	56.2	0.50	56.2	29.9	4.2	9.5	.	0.2	0.2	0.50	-0.31	-0.15	-0.26	.	0.00	-0.03	-0.58	F			
Russian Federation	1269	77.7	0.52	77.7	15.1	3.6	3.3	.	0.2	0.2	0.52	-0.40	-0.17	-0.23	.	-0.04	0.00	-1.30	E F			
Slovenia	369	75.6	0.43	75.6	16.3	2.4	5.7	.	0.0	0.0	0.43	-0.30	-0.12	-0.24	.	.	.	-0.98	E F			
Sweden	1232	54.8	0.48	54.8	28.4	5.4	4.0	.	7.4	0.1	0.48	-0.33	-0.14	-0.14	.	-0.13	-0.03	-0.44	H F			
United States	985	64.2	0.58	64.2	26.2	4.9	4.0	.	0.8	0.0	0.58	-0.42	-0.19	-0.22	.	-0.09	.	-0.87	E F			
International Avg (9)	8133	56.0	0.49	56.0	29.5	5.4	7.1	.	2.0	0.2	0.49	-0.31	-0.15	-0.20	.	-0.07	-0.03	-0.56	F			

Keys: DIFF= Percent correct score; DISC= Item discrimination; P\_A...P\_D= Percentage choosing each option; P\_OM, P\_NR= Percentage Omitted, Not Reached;  
PB\_A...PB\_D= Point Biserial for each option; PB\_OM, PB\_NR= Point Biserial for Omitted, Not Reached; RDIFF= Rasch difficulty.  
Flags: A= Attractive distractor; C= Difficulty less than chance; D= Negative/low discrimination; E= Easier than average;  
F= Distractor chosen by less than 10%; H= Harder than average; V= Difficulty greater than 95%.