The Teachers Emphasize Science Investigation (ESI) scale was created based on teachers' responses to the seven statements described below. See **C ea a d I . e , e TIMSS a d PIRLS 2011 C . e . Q e . a e Sca e** for more information on how the scales were formed.

Exhibit 1: Items in TIMSS 2011 Teachers Emphasize Science Investigation Scale

In teaching science to the students in this class, how often do you usually ask them to do the following?

	Every or almost every lesson	About half the lessons	Some lessons	Never
1) Observe natural phenomena and describe what they see	A	A	A	A
2) Watch me demonstrate an experiment or investigation	A	A	A	A
3) Design	A			

Exhibit 2: Item Parameters for the TIMSS 2011 Teachers Emphasize Science Investigation Scale, Eighth Grade*

[illegible]	[illegible]	[illegible] 1	[illegible] 2
BTBS19A	0.37523	–0.17512	0.17512
BTBS19B	0.48753	–0.19719	0.19719
BTBS19C	1.21194	–0.28248	0.28248
BTBS19D	0.96891	–0.40132	0.40132
BTBS19G	0.03507	–0.06347	0.06347
BTBS19H	–1.09286	–0.07979	0.07979
BTBS19I	–1.12883	–0.23628	0.23628

*For the purpose of scaling, the categories "Some lessons" and "Never" were combined because there were very few respondents in each of these categories.

Exhibit 3: Scale Transformation Constants

[illegible]	[illegible]
A = 9.97329 B =	Transformed Scale Score = 9.97329 + 1.61831 • Logit Scale Score

C	C A C	E	F L E	B B 19A	B B 19B	B B 19C	B B 19D	B B 19G	B B 19H	B B 19I
B										
Alberta, Canada	0.72	38		0.67	0.55	0.67	0.68	0.63	0.54	0.57
Ontario, Canada	0.67	35		0.58	0.56	0.63	0.64	0.58	0.48	0.62
Quebec, Canada	0.70	36		0.61	0.59	0.75	0.68	0.47	0.55	0.52
Abu Dhabi, UAE	0.75	41		0.57	0.69	0.79	0.71	0.45	0.56	0.61
Dubai, UAE	0.76	41		0.66	0.72	0.80	0.73	0.63	0.43	0.43
Alabama, US	0.78	43		0.69	0.61					

Exhibit 6: Relationship Between the TIMSS 2011 Teachers Emphasize Science Investigation Scale, Eighth Grade, and TIMSS 2011 Science Achievement (Continued)

Country	[illegible]		[illegible]
	(r)	(r2)	
Colorado, US	0.10	0.01	0.00
Connecticut, US	0.06	0.00	0.00
Florida, US	–0.03	0.00	0.00
Indiana, US	–0.01	0.00	0.00
Massachusetts, US	0.04	0.00	0.04
Minnesota, US	0.03	0.00	0.00
North Carolina, US	–0.14	0.02	0.01