Appendix 12K: Mathematics Item Parameters from the Final eTIMSS 2019 Adjusted Model Calibration—Grade 4

Item		RMSD	Slope (a_i)	Location (b_i)	Guessing (c_i)	Step 1 (d_{i1})	Step 2 (d_{i2})
ME01_01	ME51043	0.045	0.450 (0.035)	0.011 (0.063)			
* ME01_02	ME51040	0.033	1.162	0.051	0.422		
* ME01_03	ME51008	0.050	1.270	1.010			
* ME01_04A	ME51031A	0.032	1.449	0.178			
* ME01_04B	ME51031B	0.029	1.619	0.252			
* ME01_05	ME51508	0.039	1.256	0.190			
* ME01_06A	ME51216A	0.038	1.272	0.592	0.237		
ME01_06B	ME51216B	0.029	0.749 (0.090)	-0.099 (0.167)	0.278 (0.060)		
* ME01_07	ME51221	0.038	0.571	-0.907	0.168		
* ME01_08	ME51115	0.030	0.591	1.706	0.113		
* ME01_09A	ME51507A	0.040	0.704	-0.564			
* ME01_09B	ME51507B	0.024	1.101	0.862			
* ME02_01	ME71219	0.042	0.709	-1.072	0.032		
* ME02_02	ME71021	0.056	1.146	0.191	0.089		
ME02_03	ME71167	0.025	1.557 (0.084)	1.073 (0.032)			
* ME02_04	ME71041	0.026	1.375	-0.220	0.143		
* ME02_05	ME71162	0.050	0.479	1.545		-0.840	0.840
ME02_06	ME71078	0.040	0.456 (0.037)	-0.848 (0.096)			
* ME02_07	ME71090	0.021	1.102	0.277	0.164		
* ME02_08	ME71151	0.057	0.593	0.990		-1.236	1.236
ME02_09	ME71119	0.033	0.675 (0.043)	-0.847 (0.069)			
ME02_10A	ME71217A	0.041	0.946 (0.054)	-0.888 (0.054)			
ME02_11	ME71142	0.030	1.132 (0.058)	-0.385 (0.035)			
* ME02_12	ME71204	0.063	1.334	0.569			
* ME03_01	ME61026	0.041	0.904	-0.740	0.098		
* ME03_02	ME61273	0.025	0.779	0.335	0.138		
* ME03_03	ME61034	0.027	1.187	0.694			
* ME03_04	ME61040	0.030	1.504	0.683	0.174		
* ME03_05	ME61228	0.058	0.734	0.965		-0.255	0.255
* ME03_06	ME61166	0.071	1.106	-0.263			
* ME03_07	ME61171	0.018	1.310	-0.249	0.231		
ME03_08	ME61080	0.024	0.700 (0.043)	0.525 (0.046)			
* ME03_09	ME61222	0.055	0.853	0.576	0.323		
ME03_10	ME61076	0.029	0.454 (0.038)	-1.144 (0.113)			
ME03_11	ME61084	0.019	1.076 (0.057)	0.648 (0.034)			

* Invariant item—item parameters for invariant items were fixed from the paperTIMSS concurrent calibration; location parameters are transformations of the fixed paperTIMSS value.

Item		RMSD	Slope (a_i)	Location (b_i)	Guessing (c_i)	Step 1 (d_{i1})	Step 2 (d_{i2})
* ME04_01	ME71013	0.036	1.155	-0.166	0.234		
* ME04_02	ME71026	0.056	1.118	0.255			
ME04_03	ME71036	0.044	0.949 (0.051)	-0.543 (0.041)			
* ME04_04	ME71040	0.031	1.391	0.432	0.103		
* ME04_05	ME71068	0.034	0.492	0.513	0.113		
* ME04_06A	ME71075A	0.026	1.256	0.360			
* ME04_06B	ME71075B	0.019	1.471	0.740			
* ME04_07	ME71080	0.063	1.595	0.731	0.303		
ME04_08	ME71211	0.026	0.640 (0.040)	0.153 (0.046)			
ME04_09	ME71178	0.022	0.862 (0.048)	0.582 (0.040)			
ME04_10B	ME71135B	0.025	0.807 (0.046)	-0.199 (0.041)			
ME04_11	ME71201	0.026	0.753 (0.056)	1.592 (0.090)			
* ME04_12	ME71175	0.054	0.801	0.008		0.560	-0.560
* ME05_01	ME51206	0.044	0.591	-0.793			
* ME05_02	ME51052	0.028	0.824	0.084	0.297		
* ME05_03	ME51049	0.021	1.341	0.131	0.143		
* ME05_04	ME51045	0.037	1.066	-0.015			
* ME05_05	ME51098	0.026	0.990	0.753	0.121		
* ME05_06	ME51030	0.034	0.945	1.187			
* ME05_07	ME51502	0.034	0.961	1.192	0.153		
* ME05_08	ME51224	0.032	0.938	0.080	0.301		
* ME05_09	ME51207	0.018	0.799	0.887	0.341		
* ME05_10	ME51427	0.030	1.053	0.752	0.136		
* ME05_11	ME51533	0.022	1.056	0.168			
ME05_12	ME51080	0.026	1.090 (0.056)	0.227 (0.031)			
ME06_01	ME61018	0.025	0.934 (0.048)	0.104 (0.034)			
* ME06_02	ME61274	0.048	0.665	-0.592	0.197		
* ME06_03	ME61248	0.048	0.828	0.439		0.401	-0.401
* ME06_04	ME61039	0.049	1.068	0.327			
ME06_05	ME61079	0.022	1.225 (0.065)	0.932 (0.036)			
* ME06_06	ME61179	0.023	1.141	0.070	0.157		
* ME06_07	ME61052	0.032	0.945	0.116	0.091		
* ME06_08	ME61207	0.034	1.429	0.376	0.113		
ME06_09	ME61236	0.041	0.783 (0.044)	0.435 (0.041)			
* ME06_10	ME61266	0.030	0.466	0.765		-0.844	0.844
* ME06_11	ME61106	0.023	0.974	-0.032	0.219		
* ME07_01	ME51401	0.028	0.784	0.540			
* ME07_02	ME51075	0.045	1.297	1.137	0.326		
* ME07_03	ME51402	0.040	0.917	0.471			

* Invariant item—item parameters for invariant items were fixed from the paperTIMSS concurrent calibration; location parameters are transformations of the fixed paperTIMSS value.

Item		RMSD	Slope (a_i)	Location (b_i)	Guessing (c_i)	Step 1 (d_{i1})	Step 2 (d_{i2})
* ME07_04	ME51226	0.031	1.302	0.681	0.270		
* ME07_05	ME51131	0.030	0.731	0.062			
* ME07_06	ME51103	0.033	1.258	0.267	0.280		
* ME07_07	ME51217	0.028	1.153	0.670			
ME07_08	ME51079	0.023	0.843 (0.048)	0.712 (0.042)			
* ME07_09	ME51211	0.054	0.783	-0.105	0.274		
* ME07_10	ME51102	0.031	0.948	0.792	0.159		
* ME07_11	ME51009	0.050	0.777	0.061			
* ME07_12	ME51100	0.044	0.642	0.217	0.195		
* ME08_01	ME71018	0.019	1.371	0.271	0.160		
* ME08_02	ME71009	0.066	1.248	0.303			
ME08_03	ME71037	0.047	0.751 (0.043)	0.019 (0.040)			
* ME08_04	ME71051	0.020	1.170	1.006			
* ME08_05	ME71064	0.051	0.724	0.850	0.155		
ME08_06	ME71176	0.044	0.728 (0.069)	-1.007 (0.188)	0.221 (0.075)		
* ME08_07	ME71169	0.021	1.317	0.600			
* ME08_08	ME71083	0.060	1.202	0.600	0.209		
* ME08_10	ME71184	0.037	1.635	1.153	0.244		
ME08_11	ME71141	0.031	0.877 (0.047)	0.317 (0.036)			
ME08_12	ME71194	0.046	0.743 (0.047)	-1.122 (0.073)			
ME08_13	ME71193	0.024	0.684 (0.024)	0.427 (0.027)		-0.773 (0.065)	0.773 (0.067)
ME08_14	ME71192	0.020	0.599 (0.023)	1.103 (0.040)		-1.327 (0.090)	1.327 (0.101)
* ME09_01	ME61275	0.043	0.709	-0.476	0.212		
* ME09_02	ME61027	0.048	0.893	-0.484			
* ME09_03	ME61255	0.029	0.812	0.576		-0.182	0.182
ME09_04	ME61021	0.025	0.827 (0.054)	1.414 (0.069)			
* ME09_05	ME61043	0.032	1.232	0.394			
* ME09_06	ME61151	0.027	1.203	-0.065	0.132		
* ME09_07	ME61172	0.033	1.520	0.849	0.123		
* ME09_08	ME61223	0.064	0.725	-0.633	0.119		
* ME09_09	ME61269	0.039	0.851	-0.370	0.130		
ME09_10A	ME61081A	0.028	1.013 (0.056)	0.873 (0.040)			
ME09_10B	ME61081B	0.027	0.978 (0.059)	1.210 (0.052)			
* ME10_02	ME71016	0.046	0.949	0.044			
* ME10_03	ME71163	0.040	1.762	1.060	0.076		
* ME10_04	ME71045	0.024	1.087	0.351	0.163		
ME10_05	ME71213	0.020	0.838 (0.047)	0.465 (0.038)			
* ME10_06	ME71070	0.023	0.354	-0.516	0.021		
ME10_07	ME71181	0.026	0.892 (0.049)	0.548 (0.037)			

* Invariant item—item parameters for invariant items were fixed from the paperTIMSS concurrent calibration; location parameters are transformations of the fixed paperTIMSS value.

Item		RMSD	Slope (a_i)	Location (b_i)	Guessing (c_i)	Step 1 (d_{i1})	Step 2 (d_{i2})
ME10_08	ME71179	0.021	1.080 (0.063)	1.095 (0.045)			
* ME10_09	ME71067	0.035	0.543	1.054		-1.542	1.542
* ME10_10A	ME71147A	0.054	1.302	-0.335			
* ME10_10B	ME71147B	0.091	0.886	0.392			
ME10_11	ME71189	0.050	0.910 (0.056)	-1.247 (0.069)			
ME10_12A	ME71187A	0.035	0.724 (0.044)	-0.645 (0.057)			
* ME10_12B	ME71187B	0.069	0.676	-0.261			
* ME11_01	ME61178	0.064	0.829	0.142			
* ME11_02	ME61246	0.029	0.953	0.145	0.090		
* ME11_03	ME61271	0.035	0.618	-0.626			
* ME11_04	ME61256	0.046	0.835	0.218			
* ME11_05	ME61182	0.025	1.210	1.173			
* ME11_06	ME61049	0.040	0.910	-0.389	0.310		
* ME11_07	ME61232	0.019	0.970	0.753	0.321		
ME11_08	ME61095	0.025	0.904 (0.048)	0.009 (0.035)			
ME11_09	ME61264	0.029	0.560 (0.026)	0.465 (0.034)		-0.183 (0.063)	0.183 (0.069)
* ME11_10	ME61108	0.035	0.520	0.647	0.182		
* ME11_11A	ME61211A	0.038	1.222	0.241			
* ME11_11B	ME61211B	0.024	1.512	0.719	0.276		
* ME12_01	ME71001	0.045	0.857	-0.986	0.087		
* ME12_02	ME71010	0.068	0.694	-0.093			
* ME12_03	ME71062	0.045	1.337	1.262	0.129		
* ME12_04A	ME71216A	0.057	1.253	-0.288			
* ME12_04B	ME71216B	0.044	0.831	0.388			
ME12_05	ME71117	0.027	0.676 (0.040)	-0.064 (0.045)			
* ME12_06	ME71071	0.031	1.248	0.610	0.332		
* ME12_07	ME71098	0.035	0.729	0.855		0.060	-0.060
ME12_08	ME71069	0.034	1.088 (0.056)	0.568 (0.033)			
ME12_09A	ME71134A	0.024	1.785 (0.124)	0.215 (0.033)	0.114 (0.019)		
ME12_09B	ME71134B	0.025	1.483 (0.072)	0.535 (0.026)			
ME12_10	ME71202	0.030	0.562 (0.038)	-0.521 (0.064)			
ME12_11	ME71190	0.031	1.009 (0.051)	-0.142 (0.034)			
* ME12_12	ME71218	0.036	1.098	1.289			
ME13_01	ME61240	0.026	0.732 (0.044)	0.739 (0.049)			
ME13_02	ME61254	0.034	0.935 (0.048)	0.176 (0.033)			
* ME13_03	ME61244	0.036	0.931	-0.068	0.220		
* ME13_04	ME61041	0.044	1.209	1.090	0.242		
* ME13_05	ME61173	0.059	0.706	-0.210			
* ME13_06	ME61252	0.026	1.157	0.684	0.113		

* Invariant item—item parameters for invariant items were fixed from the paperTIMSS concurrent calibration; location parameters are transformations of the fixed paperTIMSS value.

TIMSS & PIRLS
International Study Center
Lynch School of Education
BOSTON COLLEGE

Item		RMSD	Slope (a_i)	Location (b_i)	Guessing (c_i)	Step 1 (d_{i1})	Step 2 (d_{i2})
* ME13_07	ME61261	0.033	1.261	0.208			
ME13_08	ME61224	0.024	0.974 (0.055)	0.890 (0.042)			
* ME13_09	ME61077	0.080	0.830	-0.068	0.093		
* ME13_10A	ME61069A	0.040	0.725	-0.698			
* ME13_10B	ME61069B	0.032	0.732	-0.021			
* ME14_01	ME71024	0.023	0.921	0.254			
* ME14_02	ME71008	0.053	1.118	-0.105	0.128		
* ME14_03	ME71165	0.025	1.277	0.294	0.190		
ME14_04	ME71049	0.030	0.770 (0.043)	0.006 (0.039)			
* ME14_05	ME71063	0.054	1.050	0.314			
* ME14_06	ME71079	0.023	1.179	0.790	0.192		
* ME14_07	ME71081	0.034	1.007	-0.012			
* ME14_08	ME71094	0.045	1.007	0.741	0.280		
ME14_09	ME71177	0.025	0.531 (0.038)	0.196 (0.054)			
* ME14_10	ME71206	0.038	0.681	-0.526	0.125		
ME14_11A	ME71138A	0.025	0.770 (0.044)	0.004 (0.040)			
* ME14_11B	ME71138B	0.037	0.984	0.841			
* ME14_12	ME71203	0.055	0.653	1.272	0.106		
* ME14_13	ME71205	0.030	1.108	0.460			

* Invariant item—item parameters for invariant items were fixed from the paperTIMSS concurrent calibration; location parameters are transformations of the fixed paperTIMSS value.

TIMSS & PIRLS
International Study Center
Lynch School of Education
BOSTON COLLEGE

Appendix 12L: Science Item Parameters from the Final eTIMSS 2019 Adjusted Model Calibration—Grade 4

Item		RMSD	Slope (a_i)	Location (b_i)	Guessing (c_i)	Step 1 (d_{i1})	Step 2 (d_{i2})
* SE01_01	SE51054	0.039	0.934	-0.360	0.261		
* SE01_02	SE51024	0.038	0.612	0.733			
* SE01_03A	SE51132A	0.016	0.881	1.313			
* SE01_03B	SE51132B	0.026	0.810	1.124			
* SE01_04	SE51040	0.032	0.453	0.665			
* SE01_05	SE51193	0.036	0.940	-0.067	0.274		
* SE01_06	SE51063	0.022	1.148	0.812	0.222		
* SE01_07	SE51012	0.042	0.989	0.327	0.253		
* SE01_08	SE51115	0.036	1.090	0.205			
* SE01_09	SE51180	0.033	0.880	0.116	0.360		
* SE01_10	SE51106	0.034	1.024	0.780	0.215		
* SE01_11	SE51148	0.047	1.049	0.102	0.241		
* SE02_01	SE71002	0.065	0.572	0.102			
* SE02_02	SE71402	0.025	1.119	-0.194	0.299		
SE02_03	SE71017	0.028	0.683 (0.044)	0.193 (0.043)			
* SE02_04	SE71077	0.054	1.100	0.285			
* SE02_05	SE71072	0.079	1.212	0.845	0.232		
* SE02_06	SE71054	0.081	0.941	0.272			
* SE02_07	SE71115	0.034	0.848	0.856	0.249		
* SE02_08	SE71140	0.055	0.703	-0.012	0.240		
* SE02_09	SE71128	0.023	0.852	0.075	0.330		
* SE02_10	SE71147	0.045	0.883	-0.165	0.241		
SE02_11A	SE71920A	0.033	0.551 (0.043)	0.899 (0.068)			
* SE02_11B	SE71920B	0.018	0.956	0.671			
SE02_12	SE71268	0.020	0.923 (0.117)	0.866 (0.073)	0.180 (0.031)		
* SE03_01	SE61141	0.029	1.235	0.577	0.300		
SE03_02	SE61023	0.030	0.759 (0.046)	-0.304 (0.048)			
* SE03_03	SE61054	0.040	0.479	0.702		1.489	-1.489
* SE03_04	SE61007	0.035	0.647	-0.150	0.163		
* SE03_05	SE61006	0.040	0.785	-0.591			
* SE03_06	SE61108	0.022	1.050	0.292	0.352		
* SE03_07	SE61109	0.032	0.583	0.769	0.235		
* SE03_08	SE61080	0.034	0.968	0.356	0.264		
* SE03_09	SE61088	0.026	0.672	1.476			
* SE03_10	SE61151	0.024	0.952	0.499			
* SE03_11	SE61150	0.041	0.624	0.467			
* SE03_12	SE61169	0.050	1.077	0.138	0.268		

* Invariant item—item parameters for invariant items were fixed from the paperTIMSS concurrent calibration; location parameters are transformations of the fixed paperTIMSS value.

TIMSS & PIRLS
International Study Center
Lynch School of Education
BOSTON COLLEGE

Item		RMSD	Slope (a_i)	Location (b_i)	Guessing (c_i)	Step 1 (d_{i1})	Step 2 (d_{i2})
* SE04_01	SE71013	0.048	0.852	-0.707	0.278		
SE04_02	SE71902	0.023	0.346 (0.042)	1.980 (0.215)			
* SE04_03	SE71076	0.069	0.860	-0.505	0.134		
* SE04_04	SE71041	0.090	0.778	1.036		0.021	-0.021
SE04_05	SE71046	0.032	0.933 (0.052)	0.318 (0.033)			
* SE04_06	SE71095	0.051	0.654	0.284			
* SE04_07	SE71129	0.029	0.855	-0.559	0.346		
* SE04_08	SE71102	0.062	0.751	0.727			
* SE04_09	SE71124	0.040	1.132	0.569	0.252		
* SE04_10	SE71112	0.052	0.743	-1.124	0.216		
* SE04_11	SE71265	0.071	0.708	0.687	0.341		
* SE04_12	SE71223	0.062	0.548	-1.514	0.298		
* SE05_01	SE51044	0.045	0.503	0.259			
* SE05_03	SE51003	0.083	0.711	-0.063	0.104		
* SE05_04	SE51168	0.080	0.704	-0.416			
* SE05_05	SE51010	0.044	0.766	0.135			
* SE05_06	SE51035	0.048	1.249	1.357	0.236		
* SE05_07	SE51059	0.024	0.584	0.163			
* SE05_08	SE51142	0.052	0.802	0.657	0.199		
* SE05_09A	SE51131A	0.037	1.014	-0.030	0.193		
* SE05_09B	SE51131B	0.036	0.988	0.635	0.197		
SE05_10	SE51151	0.041	0.874 (0.053)	-0.905 (0.062)			
* SE05_11	SE51157	0.031	0.739	1.058	0.190		
* SE06_01	SE61071	0.032	0.335	-1.313	0.197		
* SE06_02	SE61138	0.034	0.616	0.061			
* SE06_03A	SE61016A	0.038	0.926	0.424	0.216		
* SE06_03B	SE61016B	0.035	0.990	0.568			
* SE06_04	SE61011	0.056	0.733	-0.477			
SE06_06	SE61083	0.047	0.762 (0.048)	-0.967 (0.069)			
* SE06_07	SE61034	0.032	0.788	1.147			
* SE06_08	SE61044	0.056	0.740	0.610			
SE06_09A	SE61142A	0.032	0.679 (0.046)	0.477 (0.046)			
* SE06_09B	SE61142B	0.027	0.788	1.093			
* SE06_10A	SE61115A	0.030	1.468	0.405	0.264		
* SE06_10B	SE61115B	0.062	1.345	0.721	0.328		
* SE07_01	SE51161	0.031	0.488	1.066	0.217		
* SE07_02	SE51051	0.024	1.391	1.429	0.281		
SE07_03Z	SE51138Z	0.034	0.528 (0.040)	0.350 (0.055)			
SE07_04	SE51194	0.037	1.049 (0.059)	0.737 (0.035)			

* Invariant item—item parameters for invariant items were fixed from the paperTIMSS concurrent calibration; location parameters are transformations of the fixed paperTIMSS value.

Item		RMSD	Slope (a_i)	Location (b_i)	Guessing (c_i)	Step 1 (d_{i1})	Step 2 (d_{i2})
* SE07_05	SE51029	0.037	0.518	1.279	0.202		
* SE07_06	SE51077	0.077	0.747	-0.108			
* SE07_07	SE51200	0.050	0.679	1.255			
* SE07_08	SE51075	0.039	0.670	-0.527			
* SE07_09	SE51065	0.050	0.870	-0.156	0.333		
* SE07_10	SE51191	0.045	1.342	0.637	0.205		
* SE07_11	SE51099	0.040	0.868	0.391	0.216		
* SE07_12	SE51175	0.060	0.978	1.026			
* SE08_02	SE71033	0.022	0.544	0.335	0.289		
SE08_03	SE71065	0.033	0.636 (0.042)	-0.218 (0.052)			
* SE08_04	SE71025	0.040	0.270	-0.270			
* SE08_05	SE71081	0.085	0.949	1.110	0.157		
* SE08_06	SE71056	0.021	0.635	0.911			
* SE08_07	SE71145	0.067	0.516	-0.231	0.181		
* SE08_08	SE71104	0.074	0.795	-0.791			
* SE08_09	SE71144	0.041	0.515	-0.028	0.081		
* SE08_10	SE71150	0.044	1.055	-0.343			
* SE08_11	SE71201	0.046	1.048	0.033	0.285		
* SE08_12	SE71237	0.039	1.086	0.272			
* SE08_13	SE71260	0.032	0.735	1.164	0.151		
* SE09_01	SE61135	0.057	0.758	-0.539	0.268		
* SE09_02	SE61069	0.030	0.400	-0.422			
* SE09_03	SE61134	0.044	0.651	0.240	0.126		
* SE09_04	SE61140	0.029	1.039	0.660	0.296		
* SE09_05	SE61019	0.069	0.887	1.002			
* SE09_06	SE61022	0.037	0.656	0.241	0.241		
* SE09_07	SE61036	0.029	0.951	0.962			
SE09_08	SE61160	0.041	0.909 (0.054)	-0.828 (0.058)			
* SE09_09	SE61159	0.076	0.826	-0.729			
* SE09_10	SE61091	0.035	0.452	1.229		-0.176	0.176
* SE09_11	SE61118	0.039	1.001	0.601	0.217		
* SE09_12	SE61097	0.036	0.798	0.576	0.275		
SE10_01	SE71009	0.044	0.594 (0.027)	-0.451 (0.040)		1.114 (0.075)	-1.114 (0.052)
* SE10_02	SE71093	0.059	0.727	-0.350			
* SE10_03	SE71069	0.039	0.946	1.199	0.295		
* SE10_04	SE71051	0.029	0.748	0.681			
* SE10_05	SE71039	0.044	0.766	0.209	0.147		
* SE10_06	SE71080	0.037	0.929	0.987	0.235		
* SE10_07	SE71137	0.062	0.705	-0.224			

* Invariant item—item parameters for invariant items were fixed from the paperTIMSS concurrent calibration; location parameters are transformations of the fixed paperTIMSS value.

Item		RMSD	Slope (a_i)	Location (b_i)	Guessing (c_i)	Step 1 (d_{i1})	Step 2 (d_{i2})
* SE10_08	SE71103	0.049	0.815	0.333	0.259		
SE10_09	SE71106	0.030	0.720 (0.047)	0.568 (0.044)			
* SE10_10	SE71100	0.070	0.910	0.334	0.374		
SE10_11	SE71921	0.026	1.639 (0.279)	1.373 (0.064)	0.262 (0.018)		
* SE10_12	SE71220	0.023	0.998	0.791	0.232		
SE10_13	SE71254	0.031	0.688 (0.045)	0.317 (0.043)			
* SE11_01	SE61132	0.066	0.710	0.598	0.213		
* SE11_02	SE61120	0.025	0.884	0.392	0.197		
* SE11_03	SE61025	0.065	0.531	-0.307			
* SE11_04A	SE61133A	0.045	1.370	0.303	0.326		
* SE11_04B	SE61133B	0.043	1.701	0.851	0.114		
* SE11_05	SE61074	0.032	0.772	0.278			
* SE11_06	SE61093	0.054	0.761	0.002		0.937	-0.937
* SE11_07	SE61161	0.054	0.614	0.723			
* SE11_08A	SE61042A	0.031	1.366	0.865	0.239		
* SE11_08B	SE61042B	0.023	0.791	0.699	0.150		
* SE11_09A	SE61041A	0.031	0.871	0.175			
* SE11_09B	SE61041B	0.031	0.719	0.226			
* SE11_10	SE61155	0.042	0.735	-0.429	0.286		
SE12_01	SE71031	0.037	0.620 (0.042)	-0.025 (0.049)			
* SE12_02	SE71090	0.040	0.767	0.070			
* SE12_03	SE71048	0.048	1.433	1.250	0.220		
* SE12_04	SE71071	0.034	0.990	0.934			
* SE12_05	SE71011	0.053	1.209	-0.362	0.193		
* SE12_06	SE71142	0.055	0.826	0.552	0.323		
* SE12_07	SE71138	0.049	0.771	-0.560			
* SE12_08	SE71127	0.047	0.920	0.093	0.288		
* SE12_10	SE71500	0.036	0.792	0.392	0.140		
* SE12_11	SE71257	0.037	1.395	1.443	0.431		
* SE12_12	SE71222	0.056	0.906	0.290			
* SE12_13	SE71252	0.049	0.988	0.411	0.290		
* SE13_02	SE61014	0.039	0.495	0.484			
* SE13_03	SE61056	0.050	0.853	-0.679			
* SE13_04	SE61015	0.040	0.692	-0.336			
* SE13_05	SE61113	0.026	0.760	1.013			
* SE13_06	SE61107	0.046	1.001	0.700	0.180		
* SE13_07	SE61046	0.040	1.164	0.863	0.227		
* SE13_08	SE61047	0.032	0.751	-0.459	0.313		
* SE13_09	SE61048	0.053	1.300	0.568	0.221		

* Invariant item—item parameters for invariant items were fixed from the paperTIMSS concurrent calibration; location parameters are transformations of the fixed paperTIMSS value.

Item		RMSD	Slope (a_i)	Location (b_i)	Guessing (c_i)	Step 1 (d_{i1})	Step 2 (d_{i2})
* SE13_10	SE61096	0.061	1.100	0.789	0.257		
SE13_11	SE61124	0.024	0.620 (0.051)	1.359 (0.091)			
SE13_12	SE61116	0.033	0.743 (0.048)	0.313 (0.041)			
SE14_01	SE71063	0.032	0.445 (0.039)	0.099 (0.063)			
* SE14_02	SE71900	0.037	1.029	0.037	0.373		
* SE14_04	SE71043	0.031	0.644	1.440			
* SE14_05	SE71005	0.045	1.021	-0.525			
* SE14_06	SE71118	0.034	1.130	0.886	0.188		
* SE14_07	SE71139	0.033	0.952	0.066	0.359		
SE14_08	SE71114	0.049	0.756 (0.047)	-0.534 (0.054)			
* SE14_09	SE71131	0.030	0.577	0.030			
* SE14_10	SE71152	0.027	1.235	0.538	0.300		
* SE14_11	SE71218	0.079	0.795	-0.567	0.309		
* SE14_12	SE71214	0.046	1.098	0.178	0.167		
* SE14_13	SE71213	0.022	1.005	1.009			

* Invariant item—item parameters for invariant items were fixed from the paperTIMSS concurrent calibration; location parameters are transformations of the fixed paperTIMSS value.

Appendix 12M: Mathematics Item Parameters from the Final eTIMSS 2019 Adjusted Model Calibration—Grade 8

Item		RMSD	Slope (a_i)	Location (b_i)	Guessing (c_i)	Step 1 (d_{i1})	Step 2 (d_{i2})
* ME01_01	ME52024	0.018	1.646	0.551	0.232		
* ME01_02A	ME52058A	0.033	1.281	-0.255			
* ME01_02B	ME52058B	0.013	1.504	0.992			
* ME01_03	ME52125	0.028	1.196	0.684	0.098		
ME01_04	ME52229	0.021	1.237 (0.071)	0.391 (0.034)			
* ME01_05	ME52063	0.037	1.320	0.672	0.196		
* ME01_06	ME52072	0.042	1.009	0.107	0.146		
* ME01_07A	ME52146A	0.046	0.859	0.292			
* ME01_07B	ME52146B	0.035	1.533	1.263			
* ME01_08	ME52092	0.030	1.244	1.624	0.151		
* ME01_09	ME52046	0.053	1.125	1.586	0.188		
* ME01_10	ME52083	0.033	1.501	0.991	0.169		
* ME01_11	ME52082	0.027	1.202	0.271	0.174		
* ME01_12	ME52161	0.037	1.187	-0.100	0.189		
* ME01_13A	ME52418A	0.022	1.908	0.758	0.147		
* ME01_13B	ME52418B	0.036	1.916	0.663	0.250		
ME02_01	ME72007	0.033	0.743 (0.037)	1.042 (0.040)		-0.151 (0.063)	0.151 (0.077)
* ME02_02	ME72025	0.044	1.492	0.739	0.195		
* ME02_03	ME72017	0.043	1.319	1.127			
* ME02_04	ME72190	0.060	0.740	0.072			
* ME02_05	ME72068	0.039	1.285	0.089	0.185		
* ME02_06	ME72076	0.036	0.859	0.660	0.092		
* ME02_07	ME72056	0.055	1.159	0.661			
* ME02_08	ME72098	0.076	1.597	0.923			
* ME02_09	ME72103	0.037	1.249	0.754	0.150		
* ME02_10	ME72121	0.031	1.309	-0.154			
ME02_11	ME72180	0.042	0.499 (0.042)	0.327 (0.071)			
* ME02_12	ME72198	0.042	1.233	0.720			
* ME02_13	ME72227	0.094	1.507	0.688			
ME02_14	ME72170	0.034	0.774 (0.051)	0.140 (0.050)			
* ME02_15	ME72209	0.025	1.057	1.470			
* ME03_01	ME62005	0.058	0.871	0.588	0.304		
* ME03_02	ME62139	0.031	0.986	0.693			
* ME03_03	ME62164	0.032	1.357	0.185	0.172		
ME03_04	ME62142	0.038	0.837 (0.054)	-0.176 (0.049)			
* ME03_05	ME62084	0.039	1.393	1.663	0.144		

* Invariant item—item parameters for invariant items were fixed from the paperTIMSS concurrent calibration; location parameters are transformations of the fixed paperTIMSS value.

Item		RMSD	Slope (a_i)	Location (b_i)	Guessing (c_i)	Step 1 (d_{i1})	Step 2 (d_{i2})
* ME03_06	ME62351	0.035	0.804	1.515	0.207		
* ME03_07	ME62223	0.033	1.420	-0.054	0.188		
* ME03_08	ME62027	0.021	0.772	0.666			
* ME03_09	ME62174	0.028	1.403	0.972	0.319		
* ME03_10	ME62244	0.034	0.971	0.572			
* ME03_11	ME62261	0.027	1.889	1.570	0.132		
ME03_12	ME62300	0.036	0.721 (0.032)	0.442 (0.034)		-0.386 (0.069)	0.386 (0.072)
* ME03_13	ME62254	0.029	0.744	1.600			
* ME03_14A	ME62132A	0.047	1.185	-0.186			
* ME03_14B	ME62132B	0.032	1.049	0.887	0.263		
ME04_01	ME72178	0.018	1.184 (0.070)	0.793 (0.040)			
* ME04_02	ME72234	0.059	0.959	1.052	0.258		
ME04_03	ME72020	0.032	0.739 (0.035)	0.029 (0.033)		-0.192 (0.067)	0.192 (0.063)
* ME04_04	ME72027	0.076	1.225	0.321	0.154		
* ME04_05	ME72052	0.078	0.814	1.664			
* ME04_06	ME72067	0.034	1.318	0.106	0.218		
* ME04_07A	ME72083A	0.085	1.406	0.019			
* ME04_07B	ME72083B	0.054	0.776	0.579	0.076		
* ME04_08A	ME72108A	0.053	0.728	0.099			
ME04_08B	ME72108B	0.017	1.085 (0.067)	0.963 (0.046)			
ME04_09	ME72181	0.032	0.956 (0.062)	1.043 (0.052)			
* ME04_10	ME72126	0.043	0.679	1.010		-0.811	0.811
ME04_11	ME72164	0.026	0.639 (0.052)	1.498 (0.096)			
ME04_12A	ME72185A	0.022	1.376 (0.081)	0.799 (0.036)			
ME04_12B	ME72185B	0.018	1.251 (0.075)	0.726 (0.038)			
ME05_01	ME52413	0.027	1.276 (0.126)	0.346 (0.069)	0.189 (0.034)		
* ME05_02	ME52134	0.048	1.261	-0.161	0.130		
* ME05_03	ME52078	0.035	0.990	0.993	0.183		
* ME05_04	ME52034	0.029	1.216	0.659	0.279		
* ME05_05A	ME52174A	0.045	1.088	0.323			
* ME05_05B	ME52174B	0.017	1.118	1.130			
* ME05_06	ME52130	0.044	1.232	1.080	0.173		
* ME05_07	ME52073	0.039	1.385	0.583	0.174		
* ME05_08	ME52110	0.022	1.464	0.763			
* ME05_09	ME52105	0.030	1.172	1.538			
* ME05_10	ME52407	0.028	1.344	0.469	0.378		
ME05_11	ME52036	0.031	0.799 (0.054)	0.922 (0.056)			
* ME05_12	ME52502	0.035	1.165	-0.139			

* Invariant item—item parameters for invariant items were fixed from the paperTIMSS concurrent calibration; location parameters are transformations of the fixed paperTIMSS value.

Item		RMSD	Slope (a_i)	Location (b_i)	Guessing (c_i)	Step 1 (d_{i1})	Step 2 (d_{i2})
* ME05_13	ME52117	0.033	0.625	2.205			
* ME05_14	ME52426	0.056	0.785	-0.687	0.142		
* ME06_01	ME62150	0.045	1.111	-0.193			
* ME06_02	ME62335	0.045	1.377	0.004	0.175		
* ME06_03	ME62219	0.034	2.050	0.961	0.218		
ME06_04	ME62002	0.030	0.447 (0.042)	0.846 (0.091)			
* ME06_05	ME62149	0.043	1.089	0.617	0.111		
* ME06_06	ME62241	0.024	1.708	0.743			
* ME06_08	ME62105	0.058	0.757	0.960		-1.718	1.718
* ME06_09	ME62040	0.039	0.769	1.057	0.224		
* ME06_10	ME62288	0.030	0.776	1.250		-0.880	0.880
* ME06_11	ME62173	0.027	1.119	0.922			
* ME06_12	ME62133	0.018	1.315	0.726	0.214		
* ME06_13A	ME62123A	0.028	1.562	0.464	0.306		
* ME06_13B	ME62123B	0.031	1.444	0.814	0.138		
* ME07_01	ME52079	0.037	0.966	0.534	0.271		
* ME07_02	ME52204	0.038	0.871	0.506	0.180		
ME07_03	ME52364	0.047	1.228 (0.072)	-0.235 (0.038)			
ME07_04	ME52215	0.026	0.911 (0.056)	0.126 (0.043)			
* ME07_05	ME52147	0.021	1.572	0.872	0.275		
* ME07_06	ME52067	0.043	1.063	0.176	0.263		
* ME07_07	ME52068	0.035	1.417	1.374	0.132		
* ME07_08	ME52087	0.031	1.622	1.249			
ME07_09	ME52048	0.033	0.757 (0.051)	0.669 (0.053)			
* ME07_10	ME52039	0.022	1.235	0.382			
* ME07_11	ME52208	0.031	2.264	1.221	0.081		
* ME07_12A	ME52419A	0.053	0.888	-0.264	0.050		
* ME07_12B	ME52419B	0.035	1.372	-0.562	0.104		
* ME07_13	ME52115	0.030	1.738	0.457	0.080		
* ME07_14	ME52421	0.050	0.824	0.751			
* ME08_01	ME72002	0.039	1.517	0.652			
* ME08_02	ME72188	0.044	1.280	0.880	0.138		
* ME08_03	ME72035	0.033	1.132	0.661			
ME08_04	ME72055	0.020	1.260 (0.077)	0.968 (0.040)			
* ME08_05	ME72222	0.093	0.603	0.761	0.098		
* ME08_06	ME72090	0.044	1.211	0.987	0.198		
* ME08_07	ME72233	0.025	1.075	0.802	0.367		
* ME08_08A	ME72106A	0.047	1.068	-0.188			
ME08_08B	ME72106B	0.020	1.537 (0.091)	0.887 (0.034)			

* Invariant item—item parameters for invariant items were fixed from the paperTIMSS concurrent calibration; location parameters are transformations of the fixed paperTIMSS value.

Item		RMSD	Slope (a_i)	Location (b_i)	Guessing (c_i)	Step 1 (d_{i1})	Step 2 (d_{i2})
ME08_08C	ME72106C	0.014	1.770 (0.114)	1.160 (0.035)			
* ME08_09A	ME72128A	0.025	0.999	0.654			
* ME08_09B	ME72128B	0.082	0.892	1.144		0.042	-0.042
ME08_10	ME72119	0.022	1.038 (0.062)	0.342 (0.039)			
* ME08_11A	ME72153A	0.072	1.021	0.488			
* ME08_11B	ME72153B	0.021	1.548	1.340			
* ME08_12	ME72172	0.037	1.048	0.204	0.060		
ME09_01	ME62329	0.081	0.675 (0.075)	-0.964 (0.224)	0.231 (0.082)		
* ME09_02	ME62151	0.027	1.247	0.826			
* ME09_03	ME62346	0.040	1.185	0.756			
* ME09_04	ME62212	0.013	1.397	1.199	0.124		
* ME09_05	ME62056	0.036	1.244	1.237			
* ME09_06	ME62317	0.033	1.328	0.933			
* ME09_07	ME62350	0.024	1.389	1.648	0.129		
* ME09_08	ME62078	0.047	1.441	0.721			
* ME09_09	ME62284	0.047	0.676	0.522	0.290		
* ME09_10	ME62245	0.031	1.273	0.752	0.204		
ME09_11	ME62287	0.029	1.321 (0.097)	1.545 (0.057)			
* ME09_12A	ME62345A	0.058	0.589	0.557		0.267	-0.267
* ME09_13	ME62115	0.031	1.507	1.468	0.202		
ME10_01	ME72187	0.041	0.909 (0.056)	-0.001 (0.044)			
* ME10_02	ME72022	0.024	1.631	1.180	0.279		
* ME10_04	ME72045	0.038	1.307	0.571			
ME10_05	ME72049	0.051	0.794 (0.053)	-0.361 (0.055)			
ME10_06	ME72069	0.045	1.615 (0.089)	0.163 (0.029)			
* ME10_07	ME72074	0.041	1.162	1.036			
* ME10_08	ME72013	0.032	1.126	0.704	0.120		
* ME10_09	ME72095	0.038	1.416	0.623			
* ME10_10	ME72109	0.039	1.467	1.194			
* ME10_11	ME72125	0.098	2.017	0.930	0.107		
* ME10_12	ME72196	0.021	1.376	0.653			
* ME10_13	ME72237	0.061	0.963	0.065	0.194		
ME10_14	ME72232	0.050	0.593 (0.046)	-0.112 (0.065)			
* ME10_15	ME72206	0.025	1.330	1.399			
* ME11_01	ME62271	0.057	1.536	0.635	0.252		
* ME11_02	ME62152	0.030	1.197	0.458			
* ME11_03	ME62215	0.040	0.889	0.765		-0.188	0.188
* ME11_04	ME62143	0.033	1.655	0.914			
* ME11_05	ME62230	0.030	1.555	1.468	0.224		

* Invariant item—item parameters for invariant items were fixed from the paperTIMSS concurrent calibration; location parameters are transformations of the fixed paperTIMSS value.

Item		RMSD	Slope (a_i)	Location (b_i)	Guessing (c_i)	Step 1 (d_{i1})	Step 2 (d_{i2})
* ME11_06	ME62095	0.029	1.586	0.660	0.219		
* ME11_07	ME62076	0.041	1.745	0.341	0.291		
* ME11_08	ME62030	0.056	0.536	0.168			
* ME11_09	ME62171	0.063	0.832	-0.035	0.128		
* ME11_10	ME62301	0.020	1.080	1.108			
* ME11_11	ME62194	0.064	1.025	-0.164	0.290		
* ME11_12	ME62344	0.038	0.874	1.202			
* ME11_13	ME62320	0.014	1.899	0.579	0.092		
ME11_14	ME62296	0.038	1.137 (0.067)	0.117 (0.037)			
* ME12_01	ME72001	0.024	1.523	0.721			
ME12_02	ME72019	0.030	1.459 (0.082)	0.529 (0.032)			
ME12_03	ME72189	0.023	1.340 (0.145)	0.510 (0.069)	0.234 (0.031)		
* ME12_04	ME72024	0.042	0.899	0.726			
* ME12_05	ME72043	0.085	2.286	0.869	0.171		
* ME12_06	ME72221	0.047	1.207	0.440	0.219		
* ME12_07	ME72220	0.066	1.330	1.263	0.202		
* ME12_08	ME72225	0.032	1.263	0.559			
* ME12_09A	ME72110A	0.040	1.493	0.696			
ME12_09B	ME72110B	0.016	1.794 (0.115)	1.155 (0.035)			
* ME12_10	ME72150	0.033	1.827	0.523	0.481		
* ME12_11	ME72139	0.021	1.155	1.104			
* ME12_12	ME72229	0.026	0.966	1.543		-1.025	1.025
* ME12_13	ME72171	0.056	1.437	0.515			
ME12_14A	ME72211A	0.029	1.607 (0.172)	0.321 (0.065)	0.273 (0.032)		
* ME13_01	ME62001	0.071	1.007	0.956	0.339		
* ME13_02	ME62214	0.026	1.151	0.499			
* ME13_03	ME62146	0.015	1.444	0.815	0.124		
* ME13_04	ME62154	0.031	1.359	0.024			
* ME13_05	ME62067	0.038	1.159	0.206	0.335		
* ME13_06	ME62341	0.039	0.932	1.753	0.218		
* ME13_07	ME62242	0.036	1.269	0.285	0.171		
* ME13_08A	ME62250A	0.029	1.207	0.248			
* ME13_08B	ME62250B	0.016	1.403	0.927			
* ME13_09	ME62170	0.085	0.535	1.031		0.551	-0.551
* ME13_10	ME62192	0.039	1.044	1.230			
* ME13_11	ME62072	0.059	1.024	0.220			
* ME13_13	ME62120	0.037	1.250	0.575	0.166		
* ME14_01	ME72005	0.038	0.704	0.234	0.100		
ME14_02	ME72021	0.022	1.220 (0.071)	0.485 (0.034)			

* Invariant item—item parameters for invariant items were fixed from the paperTIMSS concurrent calibration; location parameters are transformations of the fixed paperTIMSS value.

Item		RMSD	Slope (a_i)	Location (b_i)	Guessing (c_i)	Step 1 (d_{i1})	Step 2 (d_{i2})
ME14_03	ME72026	0.045	0.800 (0.054)	0.640 (0.049)			
* ME14_04A	ME72041A	0.045	1.268	0.214			
* ME14_04B	ME72041B	0.052	1.471	0.474			
* ME14_05	ME72223	0.083	1.948	0.773	0.250		
* ME14_06	ME72094	0.085	1.172	0.077			
* ME14_07	ME72059	0.084	1.363	0.726			
* ME14_08	ME72080	0.050	1.587	0.984	0.118		
ME14_09	ME72081	0.033	1.119 (0.072)	1.124 (0.047)			
ME14_10	ME72140	0.029	0.784 (0.053)	0.170 (0.048)			
ME14_11	ME72120	0.018	1.453 (0.090)	1.091 (0.038)			
* ME14_12	ME72131	0.033	1.349	1.395			
* ME14_13	ME72147	0.051	1.697	1.282			
* ME14_14	ME72154	0.065	1.325	0.216	0.189		
* ME14_15	ME72192	0.049	1.009	0.554	0.209		
* ME14_16	ME72161	0.030	1.164	0.728			

* Invariant item—item parameters for invariant items were fixed from the paperTIMSS concurrent calibration; location parameters are transformations of the fixed paperTIMSS value.

Appendix 12N: Science Item Parameters from the Final eTIMSS 2019 Adjusted Model Calibration—Grade 8

Item		RMSD	Slope (a_i)	Location (b_i)	Guessing (c_i)	Step 1 (d_{i1})	Step 2 (d_{i2})
* SE01_01	SE52006	0.054	0.635	-0.030		0.620	-0.620
* SE01_02	SE52069	0.029	0.984	0.668	0.325		
* SE01_03	SE52012	0.055	0.947	0.410	0.163		
* SE01_04	SE52021	0.018	1.029	0.706			
SE01_05Z	SE52095Z	0.031	0.466 (0.044)	-0.044 (0.080)			
* SE01_07	SE52054	0.042	0.749	-0.312			
* SE01_08	SE52150	0.033	0.787	1.237	0.181		
* SE01_09A	SE52243A	0.046	0.624	0.441			
* SE01_09B	SE52243B	0.037	0.769	0.461			
* SE01_09C	SE52243C	0.052	0.671	1.093	0.200		
* SE01_10	SE52206	0.063	1.127	0.545	0.207		
* SE01_11A	SE52112A	0.036	0.672	0.026	0.221		
* SE01_11B	SE52112B	0.051	0.992	0.832			
* SE01_12	SE52294	0.029	1.085	-0.017	0.206		
* SE02_01	SE72072	0.035	0.824	0.585	0.216		
* SE02_02	SE72029	0.065	1.324	1.125	0.364		
* SE02_03	SE72902	0.040	1.017	0.213			
* SE02_04	SE72077	0.046	0.685	0.463	0.300		
* SE02_05A	SE72900A	0.042	0.959	0.951			
* SE02_05B	SE72900B	0.067	0.954	1.428			
* SE02_06	SE72103	0.068	0.500	-0.011			
SE02_07	SE72110	0.024	0.868 (0.061)	0.817 (0.049)			
SE02_08	SE72130	0.031	0.720 (0.056)	0.995 (0.064)			
* SE02_09	SE72148	0.074	0.679	1.226	0.132		
* SE02_10	SE72200	0.034	0.854	0.739	0.103		
SE02_11	SE72232	0.030	1.479 (0.084)	0.311 (0.029)			
* SE02_12	SE72275	0.038	1.016	-0.454	0.117		
* SE02_13	SE72244	0.032	0.950	0.565			
* SE02_14	SE72301	0.076	0.936	1.267	0.220		
SE02_15	SE72721	0.029	1.153 (0.113)	0.095 (0.083)	0.189 (0.040)		
* SE02_16	SE72335	0.036	0.859	0.620	0.199		
* SE03_01	SE62055	0.031	0.962	-0.020	0.438		
* SE03_02	SE62007	0.046	1.176	0.525	0.205		
* SE03_03	SE62275	0.042	0.888	0.853			
* SE03_04	SE62225	0.025	1.004	1.402	0.259		
* SE03_05	SE62111	0.039	0.587	0.584		0.033	-0.033
* SE03_06A	SE62116A	0.036	1.164	0.597			
* SE03_06B	SE62116B	0.035	1.319	0.926			

* Invariant item—item parameters for invariant items were fixed from the paperTIMSS concurrent calibration; location parameters are transformations of the fixed paperTIMSS value.

TIMSS & PIRLS
International Study Center
Lynch School of Education
BOSTON COLLEGE

CHAPTER 12: IMPLEMENTING THE TIMSS 2019 SCALING METHODOLOGY
METHODS AND PROCEDURES: TIMSS 2019 TECHNICAL REPORT 12.141

Item		RMSD	Slope (a_i)	Location (b_i)	Guessing (c_i)	Step 1 (d_{i1})	Step 2 (d_{i2})
* SE03_06C	SE62116C	0.023	0.946	1.315			
* SE03_07	SE62262	0.025	0.891	1.130	0.277		
* SE03_08	SE62035	0.031	1.076	1.097	0.199		
* SE03_09	SE62144	0.054	0.725	-0.533	0.163		
* SE03_10	SE62162	0.030	0.777	0.881			
* SE03_11	SE62233	0.035	0.927	0.820	0.343		
* SE03_13	SE62171	0.035	0.384	0.893	0.185		
* SE04_01	SE72002	0.060	1.393	0.307	0.212		
SE04_02	SE72403	0.033	0.618 (0.048)	0.086 (0.060)			
* SE04_03	SE72021	0.058	0.896	0.404	0.221		
SE04_04	SE72082	0.057	0.704 (0.051)	0.089 (0.053)			
SE04_05	SE72066	0.028	1.053 (0.119)	0.446 (0.083)	0.194 (0.037)		
* SE04_06	SE72063	0.035	0.582	2.063	0.200		
* SE04_07	SE72102	0.087	0.482	0.612			
* SE04_08A	SE72141A	0.026	1.069	0.944			
* SE04_08B	SE72141B	0.065	0.731	0.669		-0.141	0.141
* SE04_09	SE72921	0.053	0.766	1.439			
* SE04_10	SE72234	0.085	1.141	1.540	0.167		
* SE04_11	SE72251	0.024	1.064	0.922	0.208		
* SE04_12	SE72284	0.050	0.786	0.009			
SE04_13	SE72345	0.035	0.823 (0.045)	0.478 (0.033)		0.632 (0.052)	-0.632 (0.055)
* SE04_14	SE72349	0.042	1.086	0.150	0.178		
* SE04_15	SE72363	0.076	0.613	0.140	0.101		
* SE05_01	SE52076	0.035	0.934	0.411	0.257		
* SE05_02	SE52272	0.050	1.130	-0.007			
* SE05_03A	SE52085A	0.016	1.038	1.232			
* SE05_03B	SE52085B	0.054	1.034	0.009			
* SE05_04	SE52094	0.036	0.614	1.030			
* SE05_05	SE52248	0.022	1.188	1.615	0.364		
* SE05_06	SE52146	0.040	1.023	0.411			
* SE05_07	SE52282	0.071	0.828	0.857	0.185		
* SE05_08	SE52299	0.063	1.224	0.392	0.309		
* SE05_09	SE52144	0.032	1.160	0.710	0.249		
* SE05_10	SE52214	0.028	0.996	0.356			
* SE05_12	SE52101	0.033	0.563	1.043			
* SE05_13	SE52113	0.042	1.565	0.597	0.292		
* SE05_14	SE52107	0.044	1.000	1.328	0.197		
* SE06_01	SE62090	0.043	1.011	0.180	0.304		
* SE06_02	SE62274	0.059	0.577	0.879		1.149	-1.149

* Invariant item—item parameters for invariant items were fixed from the paperTIMSS concurrent calibration; location parameters are transformations of the fixed paperTIMSS value.

TIMSS & PIRLS
International Study Center
Lynch School of Education
BOSTON COLLEGE

Item		RMSD	Slope (a_i)	Location (b_i)	Guessing (c_i)	Step 1 (d_{i1})	Step 2 (d_{i2})
* SE06_03	SE62284	0.061	0.375	0.478	0.172		
* SE06_04A	SE62098A	0.040	0.639	0.500		-0.050	0.050
* SE06_04B	SE62098B	0.030	0.798	1.337		-0.091	0.091
* SE06_05	SE62032	0.052	1.742	1.504	0.287		
* SE06_06	SE62043	0.028	0.907	0.981			
* SE06_07	SE62158	0.031	0.697	0.678	0.299		
* SE06_08	SE62159	0.036	0.983	0.400	0.204		
* SE06_09	SE62005	0.020	1.250	0.666			
* SE06_10	SE62075	0.025	0.990	0.770	0.314		
* SE06_11	SE62004	0.049	1.806	0.885	0.173		
* SE06_12	SE62175	0.059	0.739	0.674			
SE06_13A	SE62173A	0.036	0.647 (0.051)	0.253 (0.056)			
* SE06_13B	SE62173B	0.026	0.808	1.862	0.203		
* SE07_01A	SE52090A	0.026	0.494	0.539	0.393		
* SE07_01B	SE52090B	0.027	0.609	1.962			
* SE07_02	SE52262	0.020	0.694	0.910	0.227		
* SE07_03	SE52267	0.034	0.988	0.763	0.216		
* SE07_04	SE52273	0.030	0.638	0.934		0.174	-0.174
SE07_05Z	SE52015Z	0.039	0.847 (0.057)	-0.399 (0.057)			
* SE07_06	SE52051	0.078	1.005	0.815			
* SE07_07	SE52026	0.041	0.587	0.468	0.350		
* SE07_08	SE52130	0.026	0.909	1.202	0.215		
* SE07_09	SE52028	0.027	0.858	0.620	0.282		
* SE07_10	SE52189	0.033	1.041	0.450			
* SE07_11	SE52217	0.041	0.722	1.059	0.283		
* SE07_12	SE52038	0.033	0.994	0.977	0.290		
* SE07_13	SE52099	0.026	0.947	0.884			
* SE07_14	SE52118	0.031	0.766	1.293			
* SE08_01	SE72070	0.063	0.568	-0.193	0.207		
SE08_02	SE72400	0.035	0.878 (0.058)	-0.151 (0.049)			
* SE08_03	SE72024	0.048	0.891	-0.027	0.113		
* SE08_04	SE72462	0.036	0.490	0.792	0.198		
SE08_05	SE72443	0.026	0.969 (0.121)	0.320 (0.111)	0.249 (0.047)		
* SE08_06	SE72903	0.023	0.796	0.821		-0.090	0.090
* SE08_07	SE72145	0.041	0.949	1.441			
* SE08_08	SE72100	0.047	0.560	0.647	0.195		
* SE08_10	SE72137	0.082	0.836	0.435	0.194		
* SE08_11	SE72298	0.069	0.814	0.626			
* SE08_12	SE72215	0.057	0.515	1.031		-0.538	0.538

* Invariant item—item parameters for invariant items were fixed from the paperTIMSS concurrent calibration; location parameters are transformations of the fixed paperTIMSS value.

Item		RMSD	Slope (a_i)	Location (b_i)	Guessing (c_i)	Step 1 (d_{i1})	Step 2 (d_{i2})
SE08_13	SE72260	0.031	0.667 (0.051)	0.356 (0.054)			
SE08_14	SE72265	0.028	0.692 (0.051)	0.191 (0.053)			
* SE08_15	SE72347	0.026	1.061	1.184	0.186		
* SE08_16	SE72351	0.025	0.847	0.997			
* SE08_17	SE72367	0.020	1.114	0.705	0.156		
* SE09_01	SE62099	0.043	0.842	0.324	0.146		
* SE09_02	SE62095	0.028	0.501	0.750		-0.076	0.076
* SE09_03	SE62106	0.041	0.750	-0.654	0.116		
* SE09_04	SE62064	0.032	0.879	-0.289			
* SE09_05	SE62132	0.035	0.992	0.400	0.289		
* SE09_06	SE62163	0.035	1.196	1.375			
* SE09_07	SE62153	0.027	1.278	0.921	0.294		
SE09_08	SE62018	0.029	0.567 (0.033)	1.446 (0.067)		-0.582 (0.087)	0.582 (0.113)
* SE09_09	SE62143	0.047	0.850	1.772			
* SE09_10	SE62276	0.042	0.718	1.062			
* SE09_11	SE62050	0.032	0.920	1.074			
* SE09_12	SE62205	0.033	1.100	0.892	0.158		
* SE09_13	SE62190	0.034	0.883	0.091	0.140		
* SE09_14A	SE62024A	0.035	0.605	0.944	0.226		
* SE09_14B	SE62024B	0.025	0.801	1.514			
SE10_01	SE72033	0.029	0.789 (0.034)	0.298 (0.029)		-0.465 (0.065)	0.465 (0.065)
* SE10_02	SE72440	0.037	0.670	-0.280			
* SE10_03	SE72032	0.046	1.540	1.069	0.315		
* SE10_04	SE72031	0.037	0.655	1.009	0.137		
SE10_05	SE72086	0.028	0.637 (0.050)	-0.680 (0.082)			
* SE10_06	SE72005	0.057	1.030	0.797		0.248	-0.248
* SE10_08	SE72123	0.052	0.551	0.064	0.249		
* SE10_09	SE72116	0.042	0.574	1.240	0.198		
SE10_10	SE72920	0.083	0.544 (0.033)	0.954 (0.053)		0.985 (0.069)	-0.985 (0.095)
* SE10_11	SE72294	0.056	0.914	0.274			
* SE10_12	SE72231	0.043	1.257	0.990	0.265		
SE10_13	SE72261	0.031	0.868 (0.058)	-0.200 (0.049)			
* SE10_14	SE72220	0.081	1.761	1.800	0.210		
* SE10_15	SE72348	0.037	0.805	-0.777			
* SE10_16	SE72720	0.023	0.412	1.812	0.135		
* SE11_01	SE62279	0.042	1.185	0.075	0.187		
* SE11_02	SE62112	0.027	0.534	0.284			
* SE11_03	SE62119	0.033	1.214	0.226	0.249		
* SE11_04	SE62093	0.046	0.630	0.131		0.306	-0.306

* Invariant item—item parameters for invariant items were fixed from the paperTIMSS concurrent calibration; location parameters are transformations of the fixed paperTIMSS value.

Item		RMSD	Slope (a_i)	Location (b_i)	Guessing (c_i)	Step 1 (d_{i1})	Step 2 (d_{i2})
* SE11_05	SE62089	0.039	1.347	1.002	0.153		
* SE11_06	SE62006	0.041	0.953	0.430			
* SE11_07	SE62067	0.029	0.823	0.433			
* SE11_08	SE62247	0.035	0.977	1.300	0.268		
* SE11_09	SE62177	0.037	0.711	1.076	0.207		
* SE11_10	SE62186	0.026	1.545	1.245	0.263		
* SE11_11A	SE62211A	0.024	0.814	0.413			
* SE11_11B	SE62211B	0.019	0.868	2.149			
* SE11_13	SE62033	0.039	1.106	0.762			
* SE11_14	SE62037	0.034	0.747	0.631	0.305		
SE11_15	SE62242	0.049	0.885 (0.064)	-1.001 (0.079)			
* SE12_01	SE72078	0.061	1.019	0.526			
* SE12_02	SE72460	0.058	0.962	0.778	0.254		
SE12_03	SE72000	0.029	0.639 (0.031)	0.329 (0.035)		-0.348 (0.074)	0.348 (0.073)
* SE12_05	SE72901	0.041	0.612	1.189	0.273		
* SE12_06	SE72038	0.057	0.487	0.364	0.103		
* SE12_07	SE72120	0.066	0.441	0.022	0.092		
SE12_08	SE72143	0.023	0.892 (0.062)	0.800 (0.048)			
* SE12_09	SE72523	0.042	0.663	0.387		0.309	-0.309
* SE12_10	SE72168	0.057	1.195	0.387	0.176		
* SE12_11	SE72205	0.088	1.159	0.948	0.244		
* SE12_12	SE72293	0.045	0.959	0.926			
* SE12_13A	SE72280A	0.025	1.309	0.823			
* SE12_13B	SE72280B	0.045	1.433	0.005	0.387		
* SE12_14	SE72370	0.072	1.461	0.487	0.289		
* SE13_01A	SE62091A	0.043	0.958	-0.639	0.304		
* SE13_01B	SE62091B	0.071	0.587	-1.118	0.167		
* SE13_02	SE62100	0.035	0.898	0.403			
* SE13_03	SE62097	0.044	0.909	0.334	0.147		
SE13_04	SE62101	0.025	0.549 (0.034)	0.014 (0.044)		0.311 (0.081)	-0.311 (0.074)
* SE13_06	SE62128	0.027	0.867	0.043			
SE13_07	SE62047	0.052	0.457 (0.043)	0.356 (0.076)			
SE13_08	SE62042	0.040	0.539 (0.048)	0.859 (0.078)			
* SE13_09	SE62250	0.033	0.580	1.268			
* SE13_10	SE62246	0.033	0.924	1.256	0.288		
* SE13_11	SE62056	0.031	1.147	0.495			
* SE13_12	SE62235	0.030	0.765	0.922	0.195		
* SE13_13	SE62180	0.035	1.210	0.326	0.211		

* Invariant item—item parameters for invariant items were fixed from the paperTIMSS concurrent calibration; location parameters are transformations of the fixed paperTIMSS value.

Item		RMSD	Slope (a_i)	Location (b_i)	Guessing (c_i)	Step 1 (d_{i1})	Step 2 (d_{i2})
SE13_14	SE62022	0.030	0.577 (0.049)	0.764 (0.070)			
SE13_15	SE62243	0.042	0.631 (0.032)	-0.153 (0.040)		-0.233 (0.080)	0.233 (0.071)
SE14_01	SE72011	0.025	1.239 (0.128)	-0.106 (0.093)	0.253 (0.046)		
SE14_02	SE72905	0.042	0.481 (0.044)	-0.112 (0.078)			
* SE14_03	SE72049	0.067	0.805	0.684	0.270		
* SE14_04	SE72016	0.046	0.782	0.627		-0.167	0.167
* SE14_05	SE72451	0.041	1.084	-0.094			
* SE14_06	SE72074	0.054	0.785	0.412			
* SE14_07	SE72091	0.040	1.170	0.830	0.233		
SE14_08	SE72109	0.032	0.685 (0.051)	0.475 (0.054)			
* SE14_09	SE72140	0.038	0.906	1.049	0.279		
* SE14_10	SE72132	0.045	0.853	1.761			
* SE14_11	SE72209	0.036	1.207	0.708	0.268		
SE14_12	SE72210	0.079	0.475 (0.035)	1.120 (0.066)		0.609 (0.079)	-0.609 (0.108)
* SE14_13	SE72249	0.045	1.008	0.997	0.143		
* SE14_14	SE72323	0.032	0.697	0.791	0.295		
SE14_15	SE72368	0.033	0.748 (0.089)	-0.248 (0.170)	0.215 (0.064)		
* SE14_16	SE72303	0.038	1.205	1.133	0.210		

* Invariant item—item parameters for invariant items were fixed from the paperTIMSS concurrent calibration; location parameters are transformations of the fixed paperTIMSS value.