

# Appendix I—ITEM RESPONSE THEORY CALIBRATION RESULTS



**Table I-1. 2007-08 NECAP Science: IRT  
Item Parameters for Multiple Choice, Grade 4**

<i>Item Number</i>	<i>Parameters</i>		
	<i>a</i>	<i>b</i>	<i>c</i>
48089	0.635	-2.002	0.163
48025	0.678	-2.261	0.081
47718	0.775	-1.115	0.225
50390	0.931	0.009	0.191
47591	0.568	-0.908	0.318
49875	0.614	0.131	0.192
49870	0.391	0.746	0.152
47974	1.214	-0.014	0.126
49867	0.670	-1.026	0.244
47969	0.816	0.963	0.205
49863	1.003	-0.459	0.245
46310	0.367	-2.878	0.119
91316	0.672	-0.237	0.208
46267	0.836	1.356	0.187
46274	0.523	-0.288	0.123
46241	0.554	-1.005	0.150
49843	0.484	-2.609	0.000
46426	0.555	-1.918	0.000
46416	0.774	0.337	0.262
46258	0.587	-0.170	0.249
46512	0.463	-2.853	0.000
46455	0.945	-0.789	0.185
49861	0.425	-2.368	0.000
50443	0.506	0.936	0.301
49858	0.738	-0.319	0.132
47492	0.466	0.481	0.157
50509	0.419	-2.210	0.100
47457	0.687	-1.327	0.235
50538	0.972	-0.555	0.175
47405	0.799	-0.276	0.195
47390	1.039	-1.397	0.100
50438	0.377	-1.721	0.000
49882	0.690	0.655	0.182
47551	0.399	-1.152	0.170
49866	0.636	-1.788	0.170

<i>Item Number</i>	<i>Parameters</i>		
	<i>a</i>	<i>b</i>	<i>c</i>
48019	0.637	-2.410	0.267
46519	0.558	-1.537	0.180
46245	0.894	-0.717	0.159
46263	0.398	-0.987	0.124
47384	0.503	-0.198	0.071
47498	0.451	-0.578	0.112
49891	0.698	-0.122	0.060
47991	0.691	0.288	0.128
47742	0.219	0.300	0.244
47644	0.247	-3.273	0.247
46316	0.701	-1.175	0.100
46271	0.536	0.302	0.108
86940	0.459	0.511	0.126
47448	0.459	-1.299	0.178
47408	0.807	-0.735	0.169
49850	0.469	-0.707	0.245
47724	0.478	-3.342	0.187
47992	0.493	-0.836	0.243
49873	0.731	0.178	0.251
46402	0.692	-0.692	0.126
46276	0.535	-1.654	0.087
46508	0.960	-1.461	0.150
47361	0.643	-0.555	0.470
47386	0.501	-2.391	0.168
47418	0.523	0.164	0.143
47662	0.563	-0.866	0.240
47624	1.084	0.351	0.207
47760	0.549	-0.200	0.263
46457	0.678	-0.958	0.184
46513	0.516	-0.287	0.251
46313	0.478	-0.453	0.139
47493	0.411	-0.554	0.175
47508	0.307	-2.538	0.184
49897	1.049	0.091	0.176

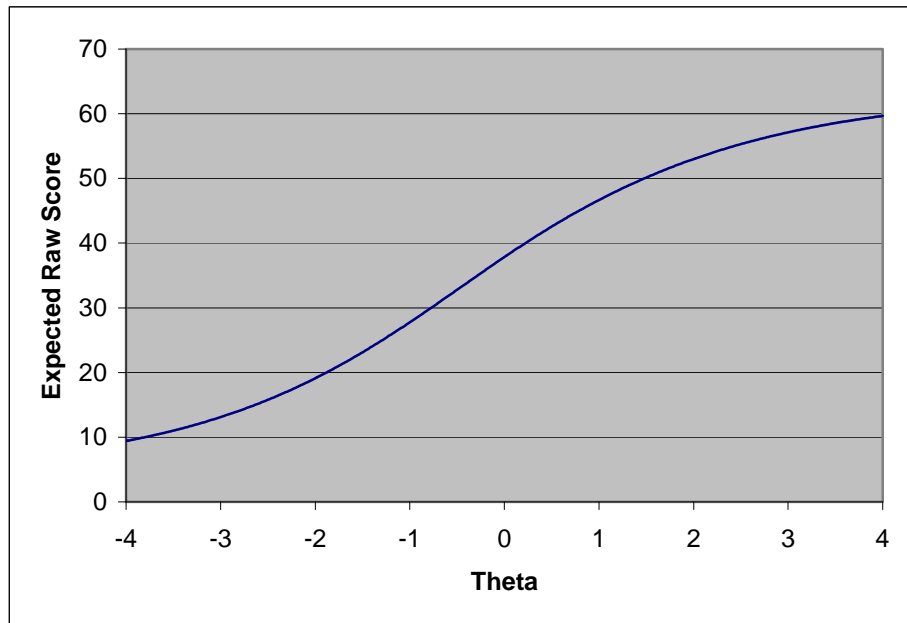
a = discrimination; b = difficulty; c = guessing

**Table I-2. 2007-08 NECAP Science: IRT  
Item Parameters for Open-Response Items, Grade 4**

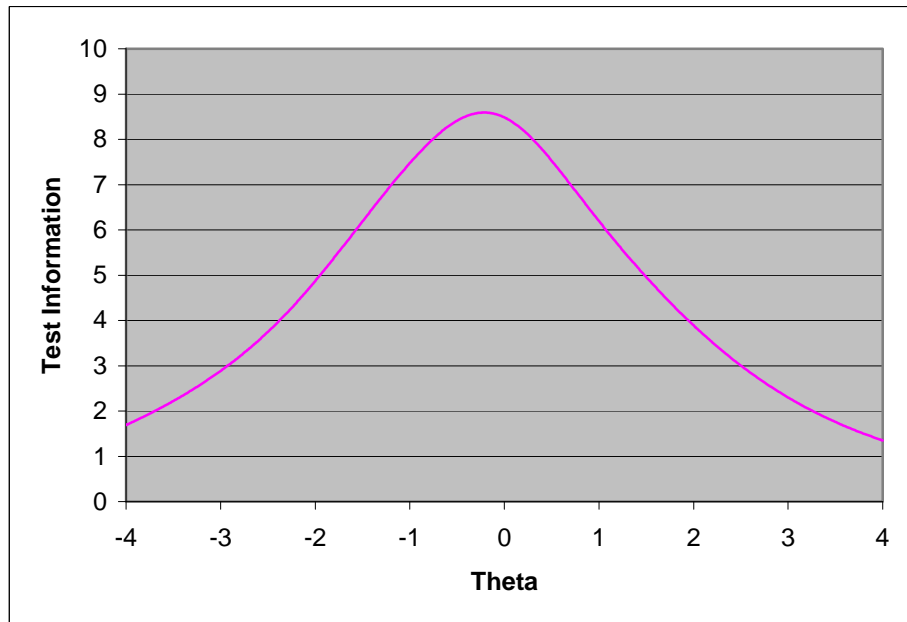
<i>Item Number</i>	<i>Parameters</i>			
	a	b	D1	D2
14082	0.468	-1.744	0.212	-0.212
14083	0.535	-2.367	1.818	-1.818
14084	0.402	0.743	1.735	-1.735
48062	0.523	0.784	1.715	0.680
75990	0.739	0.439	1.712	0.850
47427	0.528	-0.393	2.454	0.398
14081	0.512	-1.239	1.337	0.105
14085	0.467	1.945	2.932	0.310
14086	0.523	0.767	2.565	0.024
14087	0.499	1.702	2.254	0.033
48060	0.778	-0.237	2.873	-0.201
46438	0.796	0.369	1.633	0.623
47531	0.722	0.403	2.207	0.433

a = discrimination; b = difficulty; D1 = 1<sup>st</sup> category step parameter; D2 = 2<sup>nd</sup> category step parameter

**Figure I-1. 2007-08 NECAP Science:  
Test Characteristic Curve (TCC), Grade 4**



**Figure I-2. 2007-08 NECAP Science:  
Test Information Function (TIF), Grade 4**



**Table I-3. 2007-08 NECAP Science: IRT  
Item Parameters for Multiple Choice, Grade 8**

<i>Item Number</i>	<i>Parameters</i>			<i>Item Number</i>	<i>Parameters</i>		
	<i>a</i>	<i>b</i>	<i>c</i>		<i>a</i>	<i>b</i>	<i>c</i>
50024	0.791	-2.169	0.078	48456	0.975	0.882	0.193
50001	0.348	-2.299	0.130	46082	0.958	0.519	0.341
47827	0.995	0.452	0.211	46109	0.578	1.426	0.210
90306	0.768	-0.667	0.158	46089	0.814	-0.555	0.144
50030	0.440	0.463	0.261	50511	0.600	-1.511	0.105
47894	0.526	-1.861	0.000	48268	0.415	-0.306	0.124
47812	0.325	-0.214	0.148	48421	0.723	0.472	0.242
90308	1.134	0.139	0.296	50012	0.499	0.221	0.385
50005	0.739	-0.645	0.173	76623	0.530	0.657	0.182
48469	0.458	-0.987	0.095	50138	0.783	-1.214	0.147
47777	1.112	1.078	0.219	46070	1.017	0.951	0.300
46060	0.463	1.895	0.132	86817	0.582	1.889	0.140
90310	0.561	-0.138	0.171	46072	0.546	-0.669	0.093
46098	0.563	0.830	0.240	48245	0.790	-0.869	0.114
46038	1.232	-0.734	0.135	50145	0.815	-0.410	0.186
46124	1.037	1.516	0.184	90304	0.636	-0.303	0.063
46025	0.503	-1.562	0.000	50016	0.589	-1.809	0.116
46062	0.888	0.140	0.231	50026	0.866	0.210	0.417
46049	0.698	-0.393	0.180	48445	0.612	0.626	0.190
46118	0.466	0.035	0.131	46106	0.335	0.245	0.098
46115	0.913	0.587	0.254	46041	0.511	0.596	0.132
46031	1.063	0.939	0.193	46016	0.655	-0.776	0.136
48553	0.824	-0.980	0.108	50120	0.874	0.752	0.272
48568	0.691	-0.221	0.144	48228	0.663	-0.433	0.133
48439	0.566	0.250	0.081	48563	0.500	-0.832	0.147
48286	0.720	-0.159	0.200	49988	0.480	-1.737	0.198
50130	0.989	0.078	0.152	76626	0.609	-0.100	0.264
48551	0.608	-0.855	0.072	49990	0.917	0.717	0.271
50126	1.205	-0.669	0.136	46026	0.794	-0.508	0.216
48168	1.004	-0.135	0.248	46074	0.983	0.242	0.271
90313	0.676	0.046	0.069	46046	0.696	-0.704	0.133
48250	0.786	0.163	0.218	48184	0.647	-0.758	0.065
48207	0.493	0.962	0.170	48267	1.070	-0.077	0.202
48472	0.634	-1.429	0.243	48297	0.458	1.079	0.237
47790	0.609	-1.552	0.117				

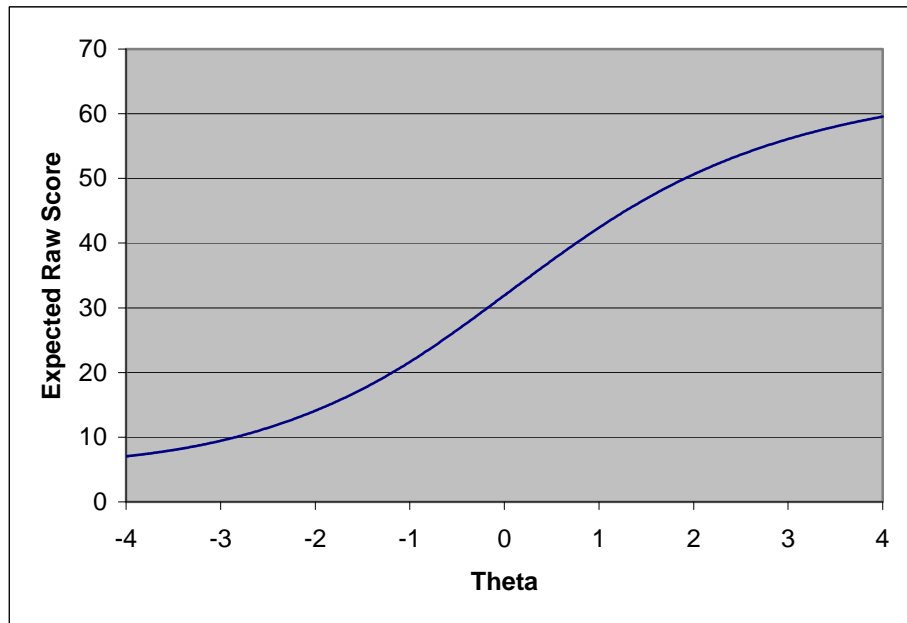
a = discrimination; b = difficulty; c = guessing

**Table I-4. 2007-08 NECAP Science: IRT Item  
Parameters for Open-Response Items, Grade 8**

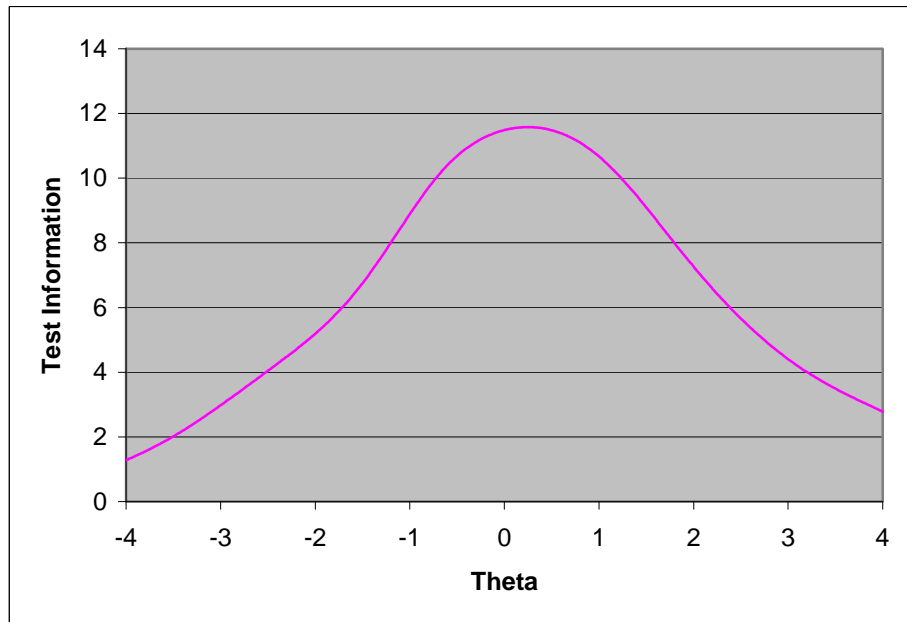
<i>Item Number</i>	<i>Parameters</i>			
	a	b	D1	D2
18083	0.504	-0.188	1.491	-1.491
18084	0.852	-0.396	1.554	-1.554
18085	0.616	1.814	0.850	-0.850
47911	0.674	1.403	3.536	0.729
46091	0.901	1.636	2.226	0.808
48270	0.933	-0.044	2.459	0.724
18081	0.771	-0.798	1.403	0.317
18082	0.640	-0.351	2.950	-0.187
18086	0.775	1.590	1.712	0.009
18087	0.741	1.643	2.483	-0.081
90278	1.013	0.516	1.017	0.334
46039	1.011	0.274	2.251	0.720
48276	0.990	0.430	1.744	0.683

a = discrimination; b = difficulty; D1 = 1<sup>st</sup> category step parameter; D2 = 2<sup>nd</sup> category step parameter

**Figure I-3. 2007-08 NECAP Science:  
Test Characteristic Curve (TCC), Grade 8**



**Figure I-4. 2007-08 NECAP Science:  
Test Information Function (TIF), Grade 8**



**Table I-5. 2007-08 NECAP Science: IRT Item Parameters for Multiple Choice, Grade 11**

<i>Item Number</i>	<i>Parameters</i>			<i>Item Number</i>	<i>Parameters</i>		
	<i>a</i>	<i>b</i>	<i>c</i>		<i>a</i>	<i>b</i>	<i>c</i>
49918	0.747	-0.936	0.095	47930	0.963	1.289	0.226
47810	0.730	-0.332	0.257	46121	0.888	-0.995	0.184
47838	1.166	1.252	0.214	46019	0.397	1.084	0.112
48032	0.424	1.440	0.119	46167	0.633	0.852	0.060
47919	0.819	0.442	0.224	48372	0.564	1.747	0.148
50014	1.044	-0.528	0.283	48156	1.283	-0.876	0.129
47795	0.485	-0.335	0.074	48543	0.915	0.772	0.256
47933	0.717	-0.150	0.179	47829	0.712	0.729	0.103
47940	1.036	0.048	0.171	49934	0.699	-1.370	0.198
48914	0.845	-1.039	0.056	49922	0.560	0.098	0.206
48002	0.514	-0.628	0.074	49935	0.886	-0.308	0.153
46057	0.536	1.233	0.217	46148	0.799	0.146	0.227
46130	0.626	-0.492	0.085	46094	0.177	1.824	0.261
46152	0.671	1.657	0.284	48357	1.080	1.335	0.238
46076	0.478	0.634	0.204	49902	0.719	1.175	0.271
46134	0.886	-0.575	0.147	48175	0.829	-0.700	0.164
46084	0.374	1.280	0.070	47884	0.769	-0.148	0.349
46158	1.056	-0.985	0.081	48071	0.687	-0.021	0.204
46011	1.072	-1.404	0.052	48908	0.385	-0.385	0.137
46140	0.305	-0.841	0.000	46154	0.446	-1.265	0.000
46034	0.891	1.116	0.174	49930	0.696	1.534	0.160
46184	0.394	0.006	0.047	46166	0.845	0.607	0.296
48120	0.529	-0.786	0.074	48415	1.629	1.231	0.190
48256	1.276	1.355	0.250	49903	0.944	-0.259	0.175
48213	0.546	1.523	0.228	48216	0.515	0.703	0.142
48151	0.598	-0.678	0.000	47896	1.006	0.468	0.320
48411	0.482	1.417	0.198	48005	0.670	0.781	0.279
48427	0.944	-0.853	0.089	47917	0.332	0.288	0.089
48163	0.825	0.113	0.121	46179	0.788	-0.359	0.152
48531	0.612	0.370	0.172	49925	0.943	-0.023	0.179
48220	0.206	3.240	0.098	46096	0.351	0.025	0.078
48147	0.649	0.154	0.184	48416	0.572	-1.122	0.079
48409	0.853	0.355	0.288	89654	0.765	-0.029	0.284
47792	0.510	-0.949	0.087	49931	0.797	-0.456	0.120
48921	0.913	0.732	0.365				

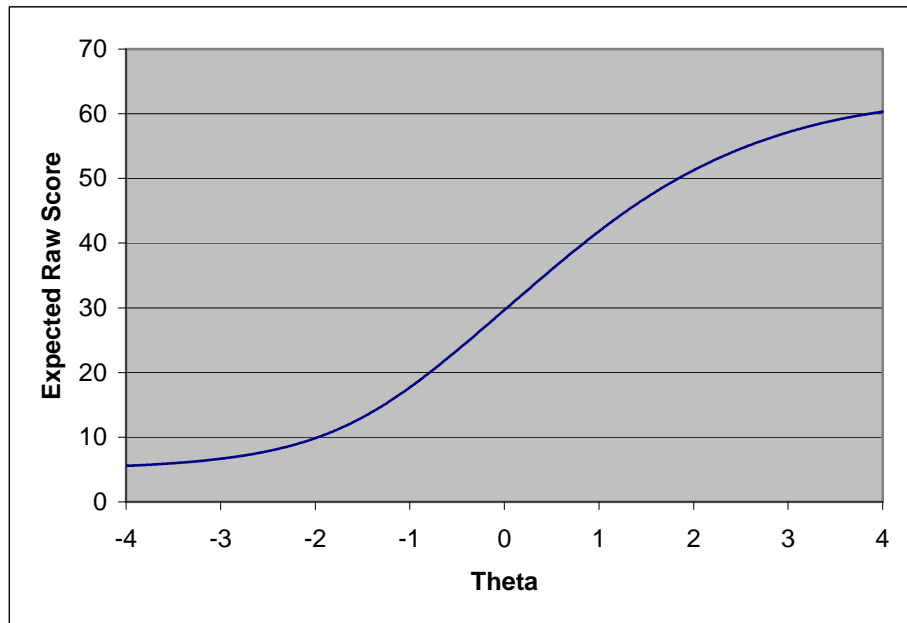
a = discrimination; b = difficulty; c = guessing

**Table I-6. 2007-08 NECAP Science:  
IRT Item Parameters for Open-Response Items, Grade 11**

<i>Item Number</i>	<i>Parameters</i>			
	a	b	D1	D2
11082	1.100	-0.154	0.893	-0.893
11083	0.781	-0.700	0.931	-0.931
11086	1.144	-0.066	0.577	-0.577
89431	1.097	1.127	1.827	0.383
46190	0.770	2.139	2.203	0.740
48181	1.020	1.283	1.866	0.673
11081	0.990	0.980	1.120	0.200
11084	0.803	0.911	1.440	0.602
11085	0.988	-0.289	1.024	0.080
11087	1.062	0.440	1.302	-0.102
47901	1.242	1.179	1.113	0.599
46099	0.680	2.279	3.314	1.759
89507	0.924	0.616	1.828	0.631

a = discrimination; b = difficulty; D1 = 1<sup>st</sup> category step parameter; D2 = 2<sup>nd</sup> category step parameter

**Figure I-5. 2007-08 NECAP Science:  
Test Characteristic Curve (TCC) Grade 11**



**Figure I-6. 2007-08 NECAP Science:  
Test Information Function (TIF) Grade 11**

