

# Appendix J—ITEM RESPONSE THEORY PARAMETERS, TCCs, AND TIFs



**Table J-1. 2008–09 NECAP: IRT Parameters  
Multiple-Choice Items—Mathematics Grade 3**

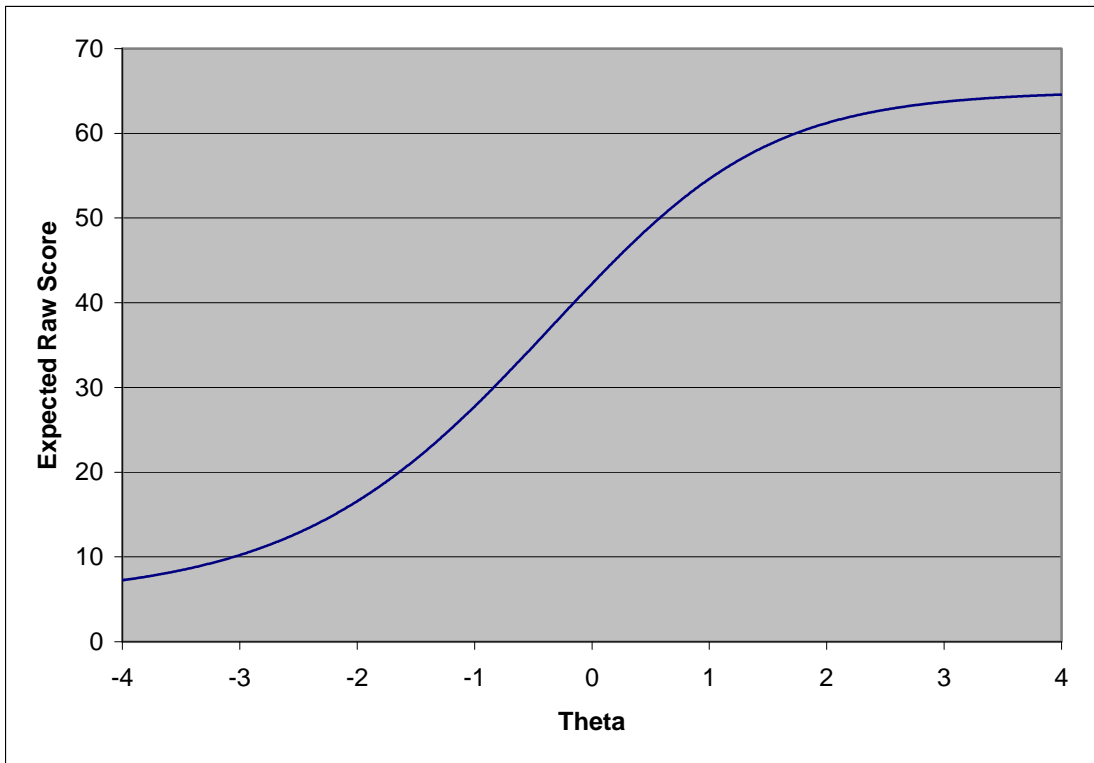
<i>Item Number</i>	<i>Parameters</i>		
	a	b	c
119847	0.570	-1.673	0.072
119678	1.266	-0.450	0.228
119839	0.866	-0.307	0.000
119752	0.724	-1.619	0.081
119725	1.066	0.325	0.146
119718	1.148	-0.775	0.115
119846	0.642	0.325	0.091
119772	0.570	-1.681	0.114
119723	0.934	0.287	0.079
119844	0.577	-2.545	0.000
119877	0.483	-2.524	0.000
119871	1.004	-1.072	0.031
119735	0.618	0.325	0.213
119866	1.059	1.104	0.199
119848	0.674	-2.112	0.000
119770	1.018	-0.622	0.097
119768	0.897	-0.468	0.269
119869	0.927	0.140	0.190
119840	1.007	-0.132	0.235
119745	0.833	0.028	0.183
119935	0.777	1.009	0.153
119681	0.546	-2.167	0.000
119858	0.401	-2.480	0.239
119743	0.818	-1.207	0.359
119685	0.906	-1.184	0.040
119702	1.252	0.615	0.201
119842	1.198	0.157	0.402
119694	0.857	-0.586	0.310
119764	1.002	-0.280	0.131
119769	1.125	0.024	0.182
119776	0.728	0.877	0.266
119741	0.622	-0.907	0.299
119778	1.182	0.559	0.103
119758	1.108	-0.867	0.049
119696	0.953	-1.567	0.061

a = discrimination; b = difficulty; c = guessing

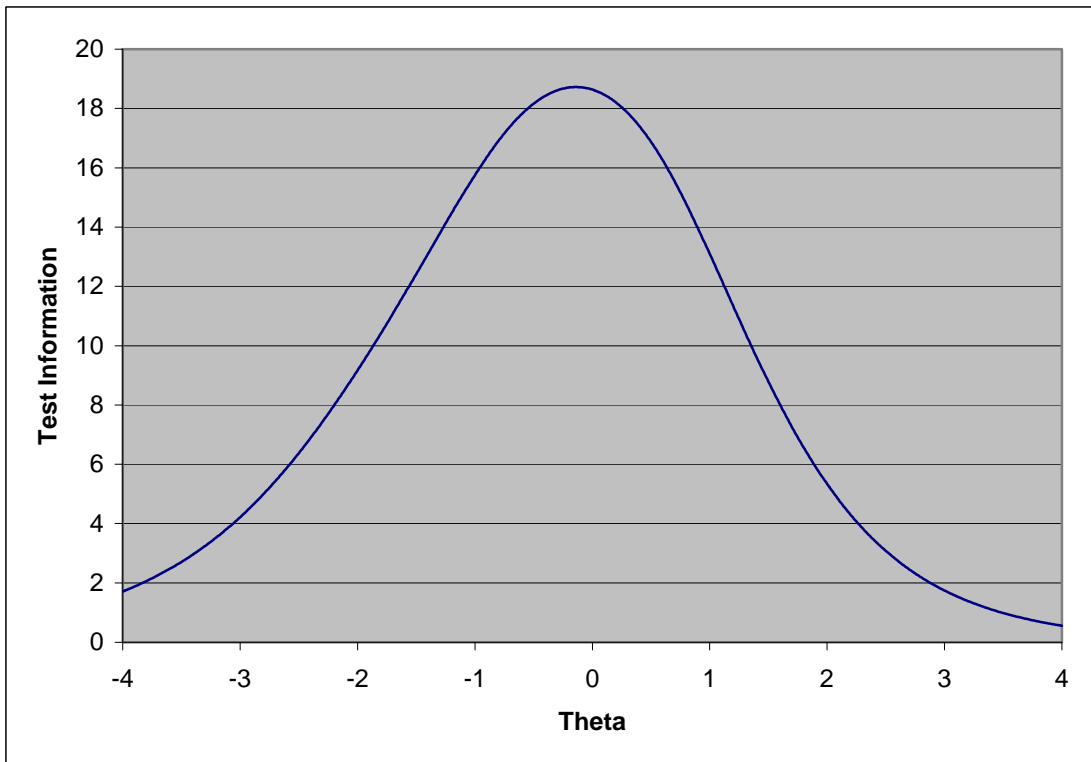
**Table J-2. 2008–09 NECAP: IRT Parameters  
Constructed-Response Items—Mathematics Grade 3**

<i>Item Number</i>	<i>Parameters</i>			
	a	b	D1	D2
119760	0.647	-0.640	N/A	N/A
119751	0.786	0.350	N/A	N/A
119775	0.653	-0.572	N/A	N/A
119852	0.875	0.841	N/A	N/A
119761	0.803	0.744	0.670	-0.670
119708	0.751	-1.086	1.027	-1.027
119782	0.629	0.967	1.536	-1.536
119864	0.701	-0.605	0.776	-0.776
119853	1.011	-1.265	0.593	-0.593
119731	0.902	-1.115	N/A	N/A
119699	0.700	-2.301	N/A	N/A
119850	1.010	0.480	N/A	N/A
119875	0.767	-0.662	0.956	-0.956
119862	0.882	0.018	0.790	-0.790
119806	0.878	-1.001	0.813	-0.813
119733	0.660	-0.879	N/A	N/A
119860	0.896	-0.393	N/A	N/A
119873	0.836	0.283	N/A	N/A
119836	0.640	-2.284	1.027	-1.027
119780	0.846	0.264	0.920	-0.920

a = discrimination; b = difficulty; D1 = 1st category step parameter; D2 = 2nd category step parameter



**Figure J-1 2008–09 NECAP: Test Characteristic Curve (TCC)—Mathematics Grade 3**



**Figure J-2 2008–09 NECAP: Test Information Function (TIF)—Mathematics Grade 3**

**Table J-3. 2008–09 NECAP: IRT Parameters  
Multiple-Choice Items—Mathematics Grade 4**

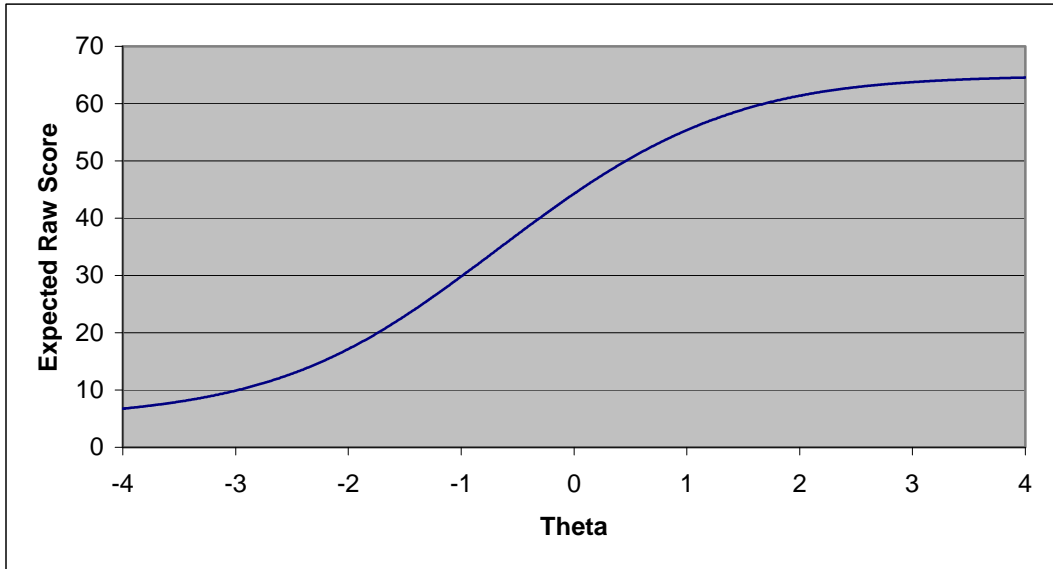
<i>Item Number</i>	<i>Parameters</i>		
	a	b	c
120220	1.069	-1.277	0.065
120047	0.760	-0.855	0.107
120217	0.712	-0.573	0.102
120218	0.593	-0.062	0.153
120112	0.742	1.786	0.070
120219	0.908	0.423	0.144
120062	0.831	-0.283	0.081
120211	1.023	0.274	0.140
120070	1.252	0.413	0.194
120053	0.988	-1.566	0.179
120224	0.450	-1.890	0.230
120232	0.993	-1.332	0.090
120214	0.791	-1.556	0.047
120234	1.081	0.370	0.097
120158	0.982	-0.677	0.278
120183	0.746	-1.987	0.064
120243	0.809	-2.153	0.000
120087	0.480	-1.823	0.093
120215	1.450	1.384	0.108
120245	0.724	-1.135	0.042
120209	0.723	-1.036	0.186
120135	0.657	-0.884	0.146
120212	0.900	-1.090	0.395
120100	0.793	-1.376	0.104
120085	0.749	-1.056	0.178
120139	1.014	-0.530	0.081
120126	1.051	-1.390	0.168
120116	1.108	-0.461	0.187
120236	1.074	-0.101	0.401
120110	0.681	0.148	0.115
120067	0.639	-1.539	0.045
120146	0.378	0.906	0.068
120144	0.949	-1.250	0.078
120090	0.753	-0.696	0.072
120124	0.732	-1.556	0.000

a = discrimination; b = difficulty; c = guessing

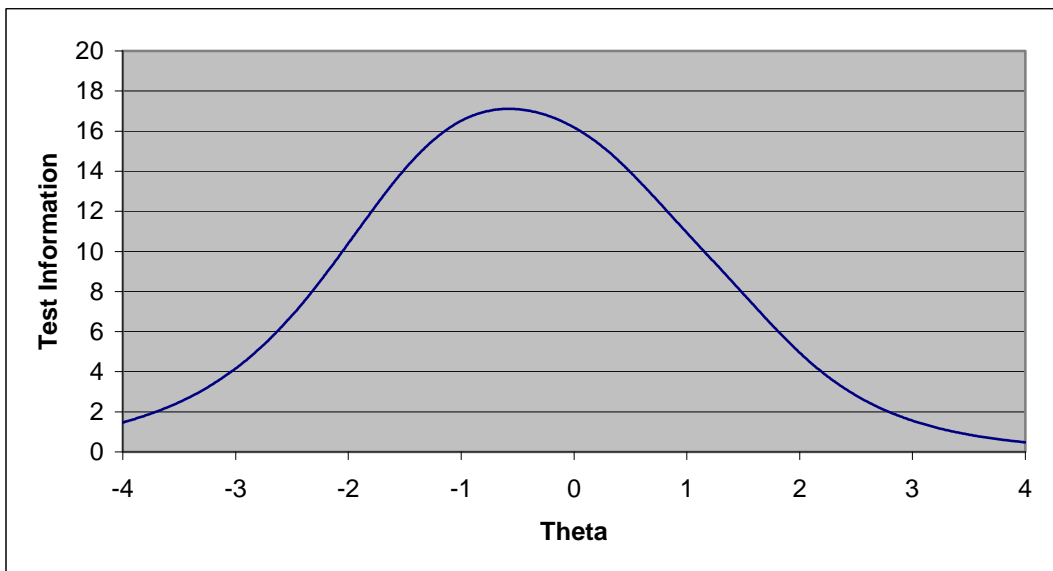
**Table J-4. 2008–09 NECAP: IRT Parameters  
Constructed-Response Items—Mathematics Grade 4**

<i>Item Number</i>	<i>Parameters</i>			
	a	b	D1	D2
120051	0.518	-1.940	N/A	N/A
120074	0.683	-0.712	N/A	N/A
120197	0.661	-0.497	N/A	N/A
120050	0.934	0.407	N/A	N/A
120061	0.735	-1.509	0.521	-0.521
120250	0.780	-0.415	1.367	-1.367
120083	0.695	-0.843	0.798	-0.798
120107	0.716	0.811	0.372	-0.372
120127	0.470	-2.458	1.541	-1.541
120237	0.671	-0.416	N/A	N/A
120159	0.792	-0.739	N/A	N/A
120072	0.538	-2.090	N/A	N/A
120222	0.868	0.017	1.515	-1.515
120205	1.076	-0.251	0.284	-0.284
120121	0.989	-0.191	0.613	-0.613
120228	0.541	-1.189	N/A	N/A
120129	0.463	-0.601	N/A	N/A
120071	0.855	-0.127	N/A	N/A
120099	0.801	-0.492	0.564	-0.564
120079	0.720	-0.689	0.729	-0.729

a = discrimination; b = difficulty; D1 = 1st category step parameter; D2 = 2nd category step parameter



**Figure J-3 2008–09 NECAP: Test Characteristic Curve (TCC)—Mathematics Grade 4**



**Figure J-4 2008–09 NECAP: Test Information Function (TIF)—Mathematics Grade 4**

**Table J-5. 2008–09 NECAP: IRT Parameters  
Multiple-Choice Items—Mathematics Grade 5**

<i>Item Number</i>	<i>Parameters</i>		
	<i>a</i>	<i>b</i>	<i>c</i>
120642	0.702	-1.756	0.092
120645	0.510	-2.219	0.000
120760	1.023	0.992	0.440
120650	1.007	1.210	0.187
120764	0.866	-0.451	0.217
120762	1.179	0.708	0.409
120713	1.138	1.027	0.144
120728	0.676	-0.055	0.223
120653	0.835	-0.282	0.180
120651	1.040	0.547	0.245
120699	0.650	0.456	0.146
120855	0.640	1.407	0.474
120757	0.669	-1.549	0.000
120769	0.702	0.353	0.103
120661	0.653	-0.140	0.185
120770	0.699	-0.861	0.112
120720	0.957	0.096	0.226
120648	0.888	-1.669	0.110
120683	0.974	0.813	0.238
120678	0.698	-0.012	0.053
120787	0.460	-1.411	0.000
120644	0.971	-0.603	0.111
120779	0.991	-0.390	0.532
120708	0.462	-0.902	0.144
120646	1.371	0.272	0.114
120775	1.141	1.073	0.267
120700	1.319	0.400	0.285
120672	0.969	0.680	0.166
120771	0.501	1.469	0.268
120777	0.519	0.043	0.263
120637	0.864	-0.371	0.164
120690	1.271	0.717	0.092

a = discrimination; b = difficulty; c = guessing

**Table J-6. 2008–09 NECAP: IRT Parameters  
Constructed-Response Items—Mathematics Grade 5**

<i>Item Number</i>	<i>Parameters</i>					
	a	b	D1	D2	D3	D4
120686	0.779	-0.113	N/A	N/A	N/A	N/A
120717	0.754	0.195	N/A	N/A	N/A	N/A
120730	0.763	-0.268	0.135	-0.135	N/A	N/A
120785	0.786	-0.460	0.479	-0.479	N/A	N/A
120667	0.813	0.518	N/A	N/A	N/A	N/A
120704	0.834	-0.199	0.444	-0.444	N/A	N/A
120772	0.862	-0.847	0.845	-0.845	N/A	N/A
120755	0.726	0.397	N/A	N/A	N/A	N/A
120789	0.818	-0.120	N/A	N/A	N/A	N/A
120698	0.932	0.315	N/A	N/A	N/A	N/A
120639	0.888	-0.326	0.224	-0.224	N/A	N/A
120694	0.468	0.562	0.681	-0.681	N/A	N/A
120731	0.890	0.128	1.172	0.581	-0.531	-1.222
120857	0.973	-0.179	1.697	0.696	-1.030	-1.363
120695	1.099	0.532	0.965	0.457	-0.380	-1.043
120751	0.964	0.108	0.789	0.261	-0.363	-0.687

a = discrimination; b = difficulty; D1 = 1st category step parameter; D2 = 2nd category step parameter; D3 = 3rd category step parameter; D4 = 4th category step parameter

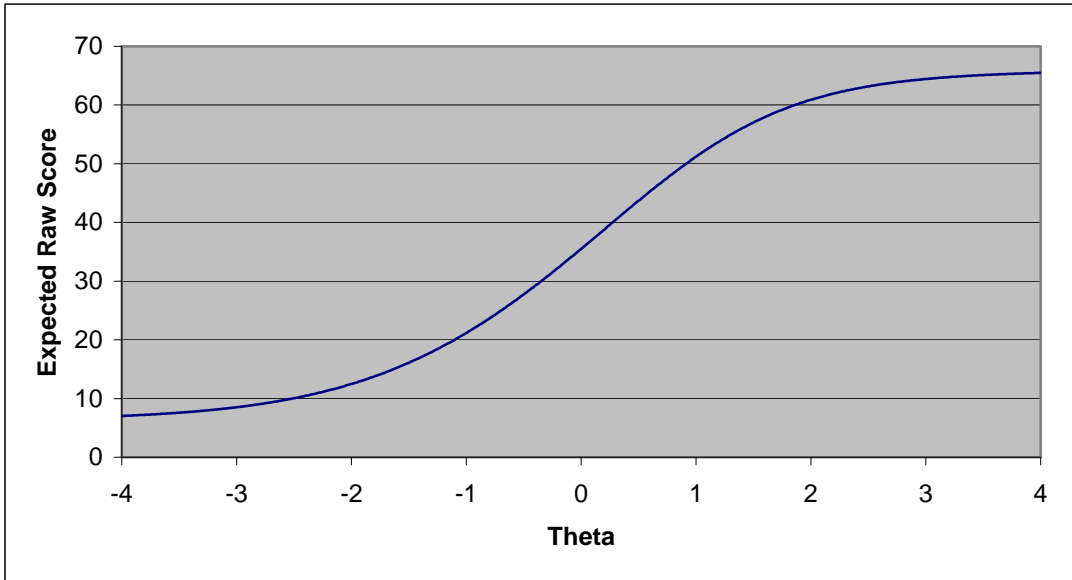


Figure J-5 2008–09 NECAP: Test Characteristic Curve (TCC)—Mathematics Grade 5

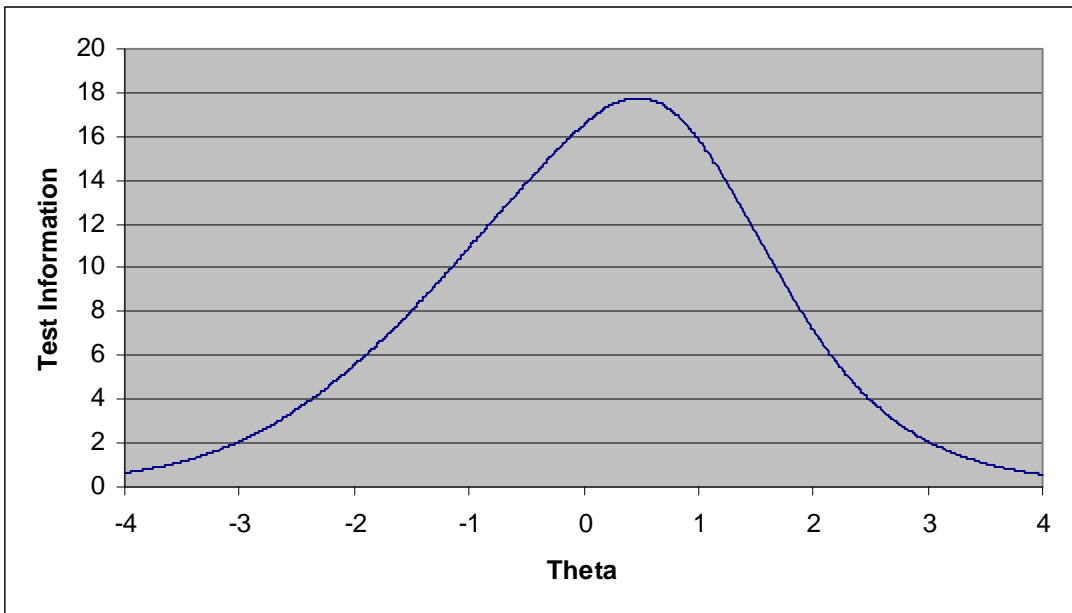


Figure J-6 2008–09 NECAP: Test Information Function (TIF)—Mathematics Grade 5

**Table J-7. 2008–09 NECAP: IRT Parameters  
Multiple-Choice Items—Mathematics Grade 6**

<i>Item Number</i>	<i>Parameters</i>		
	a	b	c
119317	0.873	1.120	0.386
119236	0.544	-0.483	0.544
119313	0.970	0.773	0.229
119316	0.820	-0.022	0.099
119184	0.930	-0.915	0.191
119344	0.997	0.382	0.109
119214	0.816	0.275	0.115
119311	0.840	0.704	0.181
119185	1.169	0.839	0.158
119186	0.568	-1.771	0.092
119175	0.607	-0.269	0.111
119332	0.259	-1.549	0.000
119288	0.269	-0.478	0.000
119283	1.102	0.238	0.214
119258	1.256	0.215	0.139
119294	1.258	1.071	0.081
119179	1.228	0.272	0.078
119326	0.876	1.009	0.101
119246	1.076	-0.109	0.186
119241	0.734	0.461	0.288
119334	0.800	-1.577	0.121
119181	1.261	-0.723	0.082
119231	0.460	-0.540	0.106
119204	0.968	-0.084	0.208
119251	0.733	1.721	0.164
119211	0.883	0.111	0.175
119199	0.935	0.092	0.228
119333	0.357	-0.876	0.000
119238	0.896	0.363	0.079
119315	1.167	0.238	0.218
119262	0.586	0.793	0.206
119261	0.483	1.392	0.167

a = discrimination; b = difficulty; c = guessing

**Table J-8. 2008–09 NECAP: IRT Parameters  
Constructed-Response Items—Mathematics Grade 6**

<i>Item Number</i>	<i>Parameters</i>					
	a	b	D1	D2	D3	D4
119272	0.695	-0.268	N/A	N/A	N/A	N/A
119337	0.517	-1.158	N/A	N/A	N/A	N/A
119230	0.798	-0.923	0.346	-0.346	N/A	N/A
119281	0.806	-0.223	0.816	-0.816	N/A	N/A
119319	0.778	-0.906	N/A	N/A	N/A	N/A
119240	0.948	0.943	0.168	-0.168	N/A	N/A
119320	0.707	0.070	0.781	-0.781	N/A	N/A
119263	0.472	0.950	N/A	N/A	N/A	N/A
119277	1.283	-0.599	N/A	N/A	N/A	N/A
119253	0.947	0.207	N/A	N/A	N/A	N/A
119205	0.808	0.594	0.275	-0.275	N/A	N/A
119203	0.657	0.060	1.097	-1.097	N/A	N/A
119322	1.276	0.800	1.218	0.306	-0.549	-0.975
119346	0.904	0.841	1.490	0.267	-0.564	-1.193
119269	0.824	1.787	1.628	0.651	-0.488	-1.790
119343	1.381	0.691	1.120	0.150	-0.212	-1.058

a = discrimination; b = difficulty; D1 = 1st category step parameter; D2 = 2nd category step parameter; D3 = 3rd category step parameter; D4 = 4th category step parameter

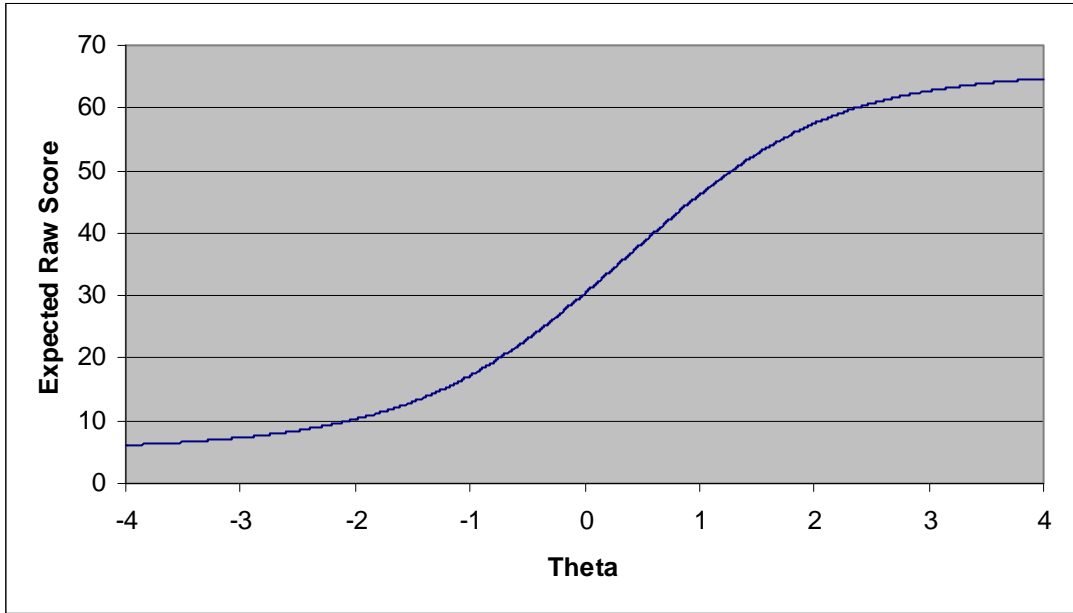


Figure J-7 2008–09 NECAP: Test Characteristic Curve (TCC)—Mathematics Grade 6

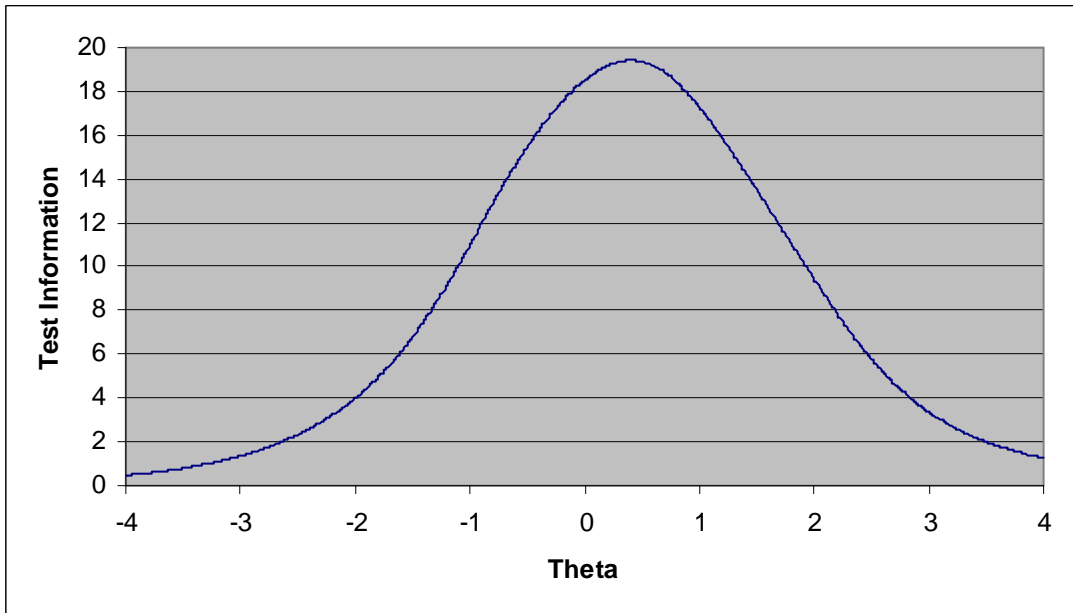


Figure J-8 2008–09 NECAP: Test Information Function (TIF)—Mathematics Grade 6

**Table J-9. 2008–09 NECAP: IRT Parameters  
Multiple-Choice Items—Mathematics Grade 7**

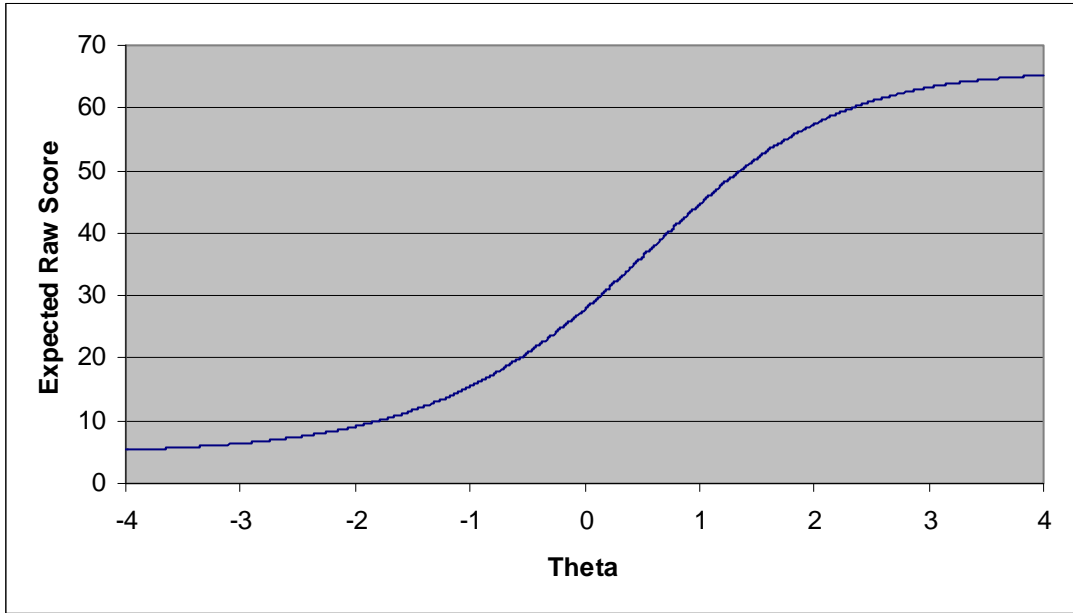
<i>Item Number</i>	<i>Parameters</i>		
	<i>a</i>	<i>b</i>	<i>c</i>
120464	0.893	0.008	0.298
120441	0.983	0.594	0.071
120444	0.549	-0.188	0.108
120349	0.865	0.183	0.175
120351	0.951	-0.066	0.127
120385	0.808	0.966	0.181
120342	1.444	1.051	0.207
120346	0.379	-1.826	0.089
120446	1.241	0.554	0.144
120447	1.345	1.379	0.164
120460	0.857	-0.630	0.169
120472	0.599	-1.262	0.000
120335	1.087	0.431	0.250
120356	0.654	1.193	0.197
120450	0.509	-0.996	0.054
120411	1.037	-1.432	0.067
120377	0.690	0.085	0.191
120331	0.516	-2.516	0.000
120334	0.576	-0.201	0.053
120467	0.914	-0.859	0.125
120364	0.834	-0.573	0.139
120462	0.852	0.390	0.059
120407	1.452	0.729	0.105
120337	0.694	-0.421	0.164
120404	0.712	0.272	0.257
120455	0.842	0.387	0.210
120362	0.367	-0.081	0.000
120531	0.356	-0.932	0.000
120465	0.677	1.525	0.186
120394	0.717	1.705	0.262
120453	1.254	1.716	0.187
120361	0.889	-0.549	0.119

a = discrimination; b = difficulty; c = guessing

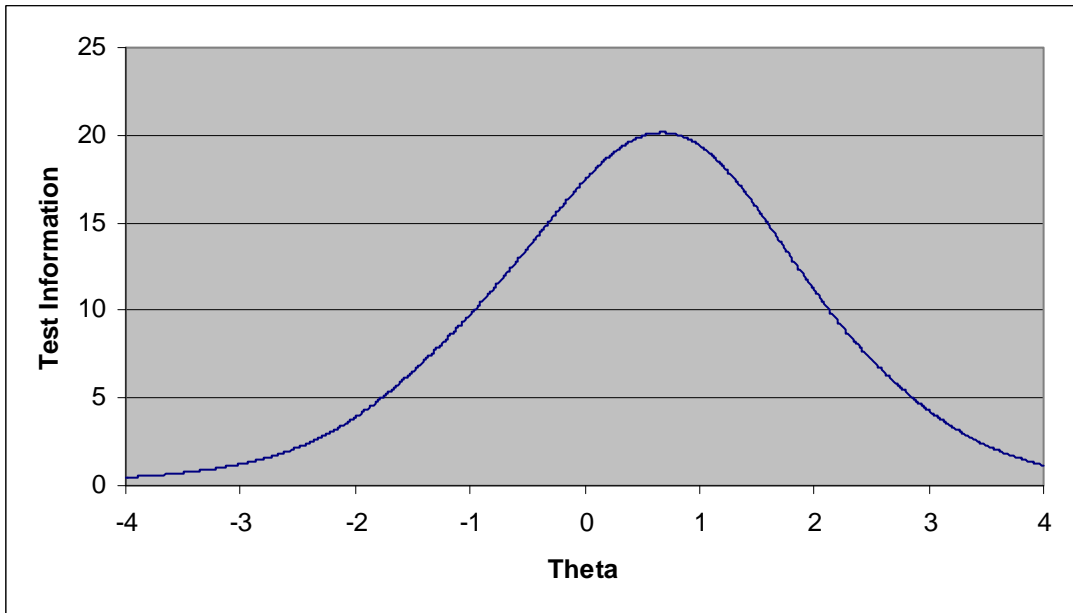
**Table J-10. 2008–09 NECAP: IRT Parameters  
Constructed-Response Items—Mathematics Grade 7**

<i>Item Number</i>	<i>Parameters</i>					
	a	b	D1	D2	D3	D4
120434	0.985	0.129	N/A	N/A	N/A	N/A
120387	0.786	0.059	N/A	N/A	N/A	N/A
120376	0.770	0.760	0.531	-0.531	N/A	N/A
120423	1.137	0.791	0.482	-0.482	N/A	N/A
120338	0.626	-0.729	N/A	N/A	N/A	N/A
120369	0.905	0.473	0.250	-0.250	N/A	N/A
120360	0.894	1.509	0.641	-0.641	N/A	N/A
120456	0.485	0.207	N/A	N/A	N/A	N/A
120533	1.134	0.261	N/A	N/A	N/A	N/A
120366	0.800	0.690	N/A	N/A	N/A	N/A
120477	0.890	0.952	0.237	-0.237	N/A	N/A
120417	1.092	0.685	0.484	-0.484	N/A	N/A
120355	1.106	0.671	1.894	0.259	-0.251	-1.902
120458	0.978	1.228	0.877	0.193	-0.188	-0.881
120530	1.144	0.295	0.667	0.325	-0.241	-0.751
120393	0.984	0.741	1.476	0.374	-0.518	-1.333

a = discrimination; b = difficulty; D1 = 1st category step parameter; D2 = 2nd category step parameter; D3 = 3rd category step parameter; D4 = 4th category step parameter



**Figure J-9 2008–09 NECAP: Test Characteristic Curve (TCC)—Mathematics Grade 7**



**Figure J-10 2008–09 NECAP: Test Information Function (TIF)—Mathematics Grade 7**

**Table J-11. 2008–09 NECAP: IRT Parameters  
Multiple-Choice Items—Mathematics Grade 8**

<i>Item Number</i>	<i>Parameters</i>		
	<i>a</i>	<i>b</i>	<i>c</i>
120915	0.932	-1.056	0.219
120896	0.895	0.379	0.201
120899	0.917	-1.157	0.068
120897	1.123	1.426	0.317
120917	1.158	-0.658	0.058
120886	1.390	-0.493	0.107
120924	1.597	0.566	0.133
120994	0.965	1.266	0.065
120998	1.262	0.769	0.140
120902	0.974	-0.377	0.127
121024	0.657	-1.189	0.079
120894	1.019	0.477	0.256
120929	1.179	0.808	0.223
120961	1.040	0.526	0.283
121020	0.583	0.177	0.088
121022	0.913	0.114	0.141
120970	1.263	1.095	0.307
120974	1.204	0.374	0.175
121008	0.993	0.515	0.216
120976	1.218	0.396	0.237
121006	1.077	0.988	0.167
120911	1.012	-0.004	0.018
120941	1.322	1.352	0.102
121018	0.937	-1.279	0.034
120921	1.012	-0.857	0.296
120879	0.768	0.433	0.162
120952	0.466	0.730	0.166
121025	1.210	-0.041	0.259
120960	1.716	0.260	0.272
121004	0.427	0.381	0.078
121037	1.225	0.359	0.193
120946	0.893	0.327	0.197

a = discrimination; b = difficulty; c = guessing

**Table J-12. 2008–09 NECAP: IRT Parameters  
Constructed-Response Items—Mathematics Grade 8**

<i>Item Number</i>	<i>Parameters</i>					
	a	b	D1	D2	D3	D4
120900	0.813	-0.524	N/A	N/A	N/A	N/A
120933	1.032	-0.073	N/A	N/A	N/A	N/A
120876	1.053	-0.063	0.782	-0.782	N/A	N/A
120890	0.716	-0.232	0.698	-0.698	N/A	N/A
120931	0.902	0.373	0.0000	0.0000	N/A	N/A
121031	1.207	-0.077	0.728	-0.728	N/A	N/A
120958	0.959	1.264	0.135	-0.135	N/A	N/A
120888	0.994	-1.069	N/A	N/A	N/A	N/A
121040	0.438	-1.016	N/A	N/A	N/A	N/A
120983	0.949	0.739	N/A	N/A	N/A	N/A
120881	0.606	1.522	0.883	-0.883	N/A	N/A
120937	1.112	0.374	0.249	-0.249	N/A	N/A
121002	1.253	0.668	1.433	0.529	-0.601	-1.361
121014	1.780	1.476	1.204	0.376	-0.737	-0.843
121042	1.204	0.547	1.749	0.568	-0.585	-1.731
121032	1.499	-0.150	1.204	0.376	-0.737	-0.843

a = discrimination; b = difficulty; D1 = 1st category step parameter; D2 = 2nd category step parameter; D3 = 3rd category step parameter; D4 = 4th category step parameter

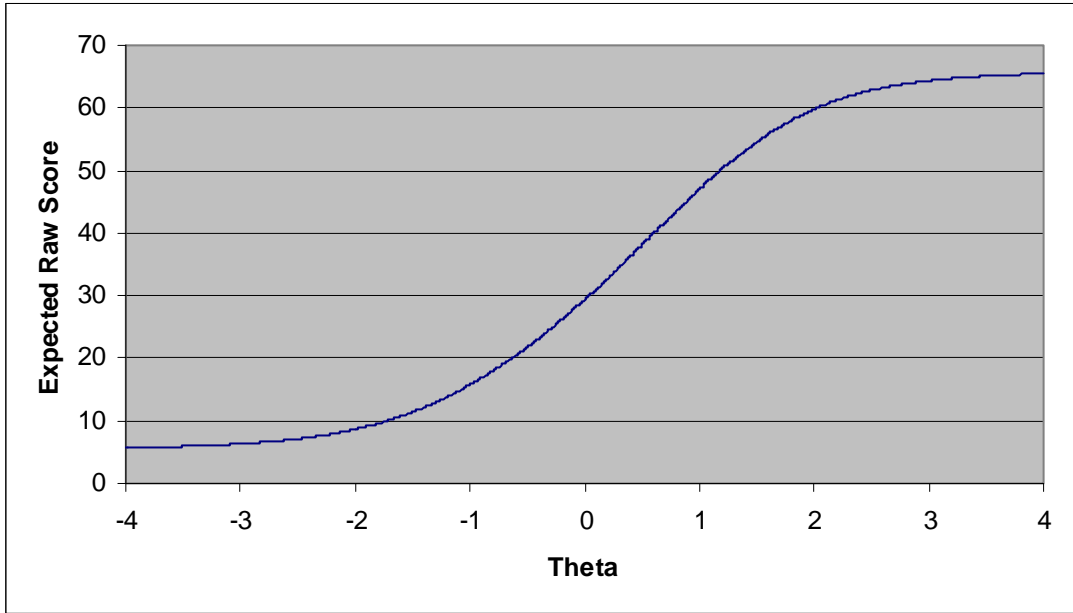


Figure J-11 2008–09 NECAP: Test Characteristic Curve (TCC)—Mathematics Grade 8

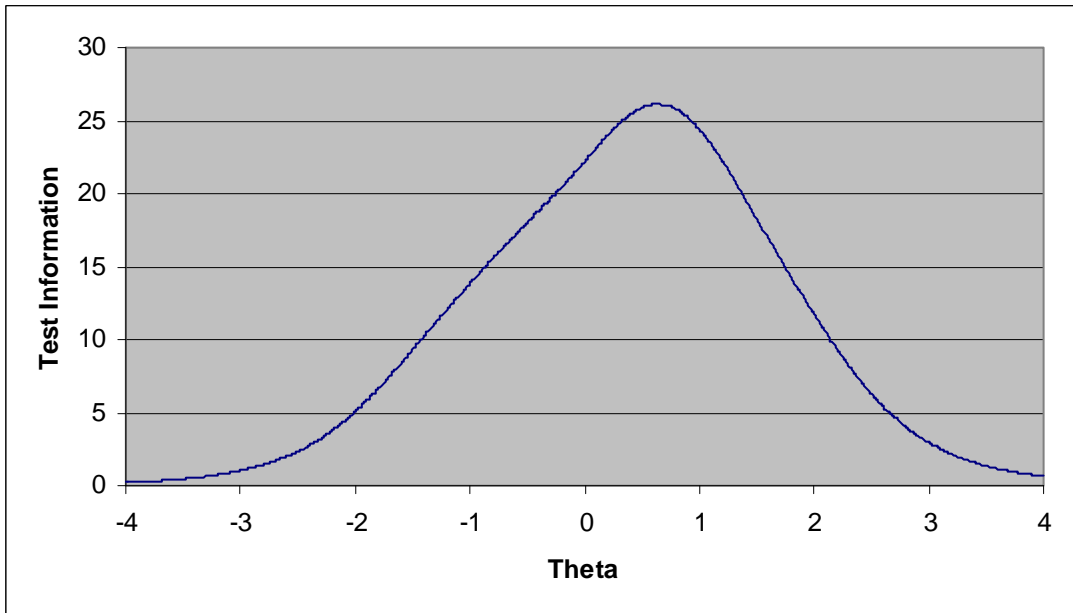


Figure J-12 2008–09 NECAP: Test Information Function (TIF)—Mathematics Grade 8

**Table J-13. 2008–09 NECAP: IRT Parameters  
Multiple-Choice Items—Mathematics Grade 11**

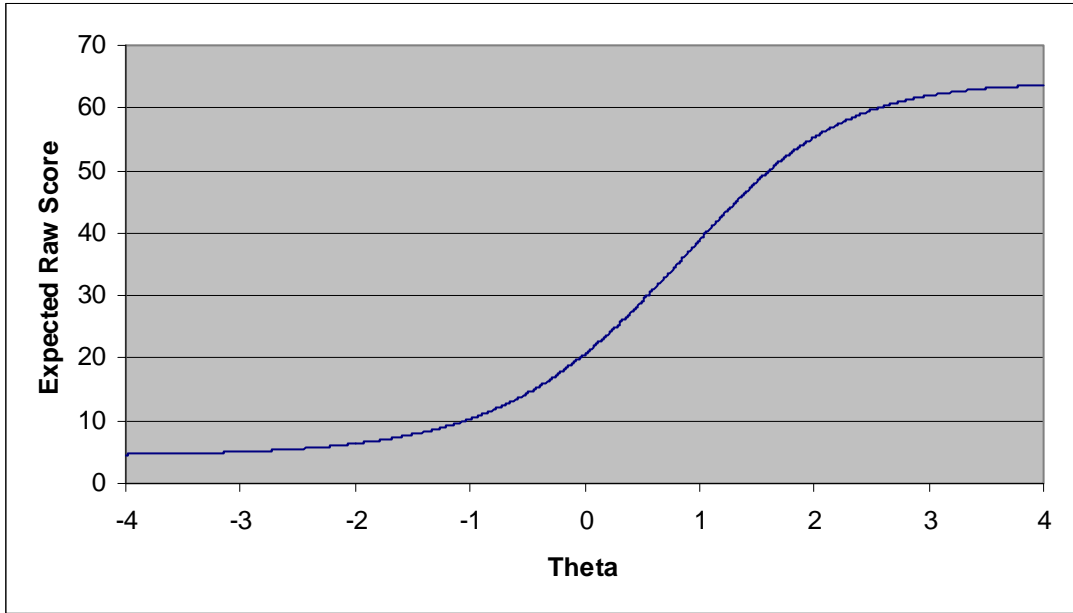
<i>Item Number</i>	<i>Parameters</i>		
	<i>a</i>	<i>b</i>	<i>c</i>
119454	0.712	-0.857	0.147
119432	0.933	0.523	0.233
119484	1.581	0.236	0.152
119420	0.758	0.134	0.190
119508	1.241	1.425	0.173
119424	1.210	0.687	0.129
119536	1.388	0.282	0.198
119527	0.702	0.285	0.208
119451	1.592	1.241	0.162
119417	1.926	1.344	0.216
119531	1.700	1.037	0.057
119514	1.328	1.407	0.229
119534	0.670	-1.541	0.055
119437	1.054	0.409	0.333
119513	1.207	0.893	0.160
119529	0.840	-0.042	0.202
119419	0.694	-1.130	0.207
119549	0.639	0.587	0.274
119430	1.067	1.256	0.150
119452	0.783	-0.033	0.128
119532	1.069	0.243	0.128
119516	1.461	1.499	0.421
119450	1.835	0.599	0.128
119444	1.660	1.050	0.168

a = discrimination; b = difficulty; c = guessing

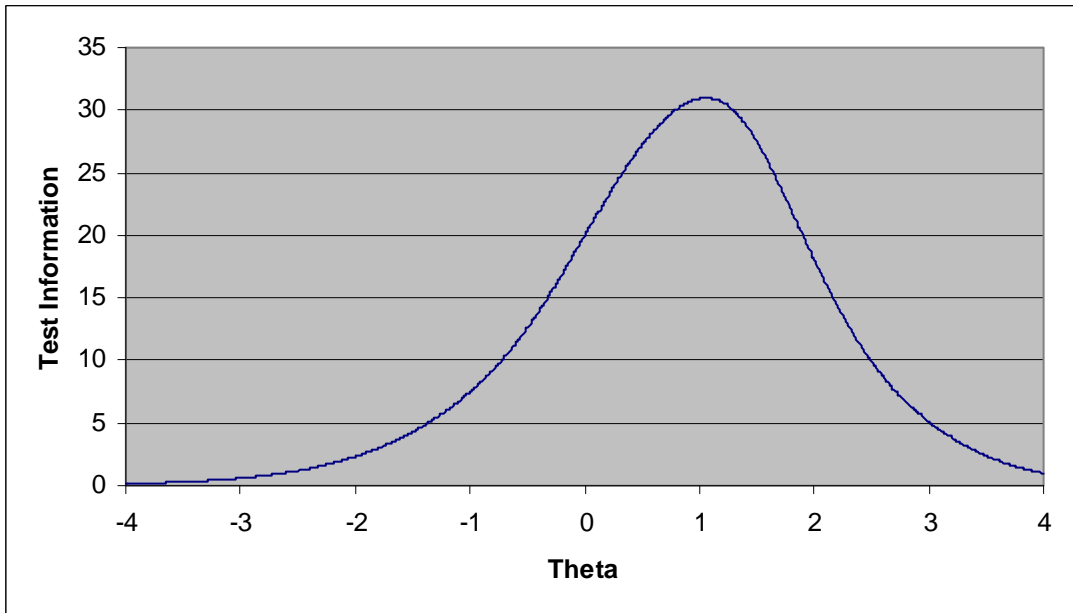
**Table J-14. 2008–09 NECAP: IRT Parameters  
Constructed Response Items—Mathematics Grade 11**

<i>Item Number</i>	<i>Parameters</i>					
	a	b	D1	D2	D3	D4
119495	1.299	0.203	N/A	N/A	N/A	N/A
119441	1.119	1.521	N/A	N/A	N/A	N/A
119494	1.160	1.005	N/A	N/A	N/A	N/A
119490	1.082	1.465	N/A	N/A	N/A	N/A
119500	1.232	0.597	N/A	N/A	N/A	N/A
119509	1.516	1.750	N/A	N/A	N/A	N/A
119472	0.785	0.887	0.686	-0.686	N/A	N/A
119543	1.059	0.797	0.085	-0.085	N/A	N/A
119511	1.280	1.830	0.238	-0.238	N/A	N/A
119552	0.674	1.035	N/A	N/A	N/A	N/A
119518	1.197	-0.191	N/A	N/A	N/A	N/A
119492	0.696	-1.401	N/A	N/A	N/A	N/A
119470	0.912	0.772	N/A	N/A	N/A	N/A
119520	1.106	-0.032	N/A	N/A	N/A	N/A
119553	1.029	0.551	N/A	N/A	N/A	N/A
119544	0.979	-0.273	0.355	-0.355	N/A	N/A
119521	1.493	0.990	0.083	-0.083	N/A	N/A
119554	0.980	1.564	0.483	-0.483	N/A	N/A
119547	1.225	0.296	1.332	0.531	-0.576	-1.287
119460	1.357	1.572	1.384	0.399	-0.513	-1.270
119546	1.167	0.496	0.610	0.410	-0.319	-0.701
119523	1.089	1.051	0.835	0.425	-0.540	-0.720

a = discrimination; b = difficulty; D1 = 1st category step parameter; D2 = 2nd category step parameter; D3 = 3rd category step parameter; D4 = 4th category step parameter



**Figure J-13 2008–09 NECAP: Test Characteristic Curve (TCC)—Mathematics Grade 11**



**Figure J-14 2008–09 NECAP: Test Information Function (TIF)—Mathematics Grade 11**

**Table J-15. 2008–09 NECAP: IRT Parameters  
Multiple-Choice Items—Reading Grade 3**

<i>Item Number</i>	<i>Parameters</i>		
	a	b	c
117649	0.976	-1.721	0.091
117663	1.346	-1.342	0.091
117671	1.285	-1.510	0.126
117672	1.297	-1.302	0.119
117673	0.852	-1.477	0.084
117674	0.612	0.622	0.197
117641	1.279	-0.127	0.187
117665	0.744	-0.010	0.233
117642	1.420	-0.250	0.273
117643	1.130	-1.557	0.239
117666	0.737	0.271	0.250
117644	0.763	-0.228	0.245
117667	0.559	0.446	0.261
117668	0.777	-1.417	0.059
117697	1.130	-1.150	0.090
117700	1.189	-0.274	0.170
117699	0.976	-0.275	0.191
117702	0.701	-1.282	0.000
117701	0.823	0.058	0.186
117703	1.339	-0.605	0.163
117698	1.061	-0.010	0.201
117704	0.691	-0.557	0.117
117733	0.831	-2.010	0.000
117734	0.607	-1.366	0.087
117687	0.722	-1.060	0.052
117688	0.698	-1.343	0.065
117690	0.738	-0.964	0.154
117689	0.767	-0.669	0.040

a = discrimination; b = difficulty; c = guessing

**Table J-16. 2008–09 NECAP: IRT Parameters  
Constructed-Response Items—Reading Grade 3**

<i>Item Number</i>	<i>Parameters</i>					
	a	b	D1	D2	D3	D4
117675	0.702	0.883	2.770	0.677	-0.998	-2.450
117650	0.786	-0.580	1.982	0.366	-0.648	-1.700
117669	0.912	0.803	2.108	0.716	-0.802	-2.022
117705	0.477	-2.570	2.646	0.781	-0.993	-2.434
117706	1.105	-0.263	0.652	0.188	-0.235	-0.605
117691	0.712	-1.001	1.200	0.555	-0.230	-1.526

a = discrimination; b = difficulty; D1 = 1st category step parameter; D2 = 2nd category step parameter; D3 = 3rd category step parameter; D4 = 4th category step parameter

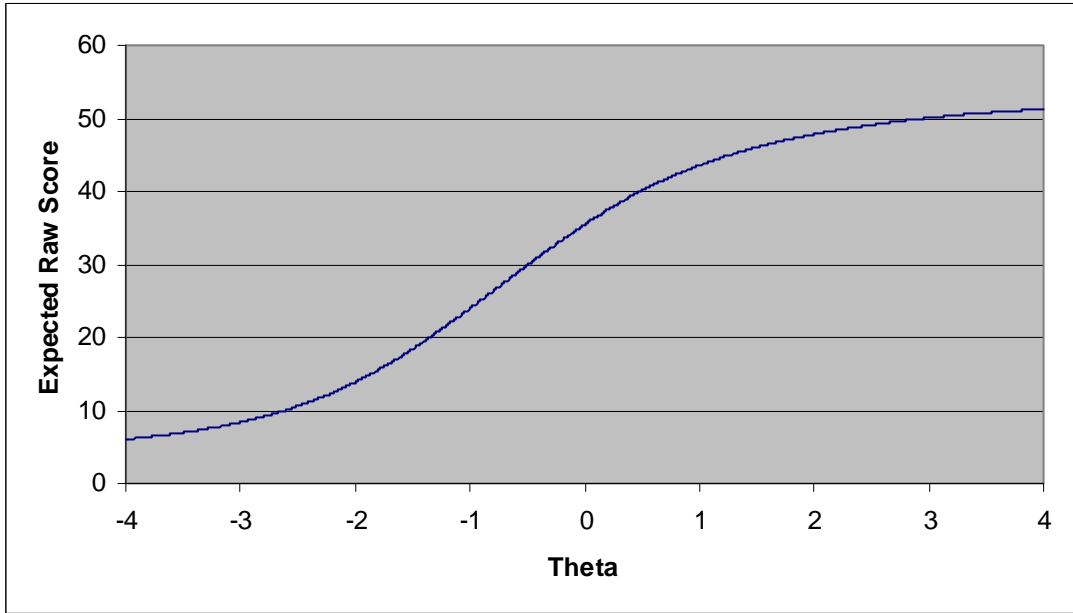


Figure J-15 2008–09 NECAP: Test Characteristic Curve (TCC)—Reading Grade 3

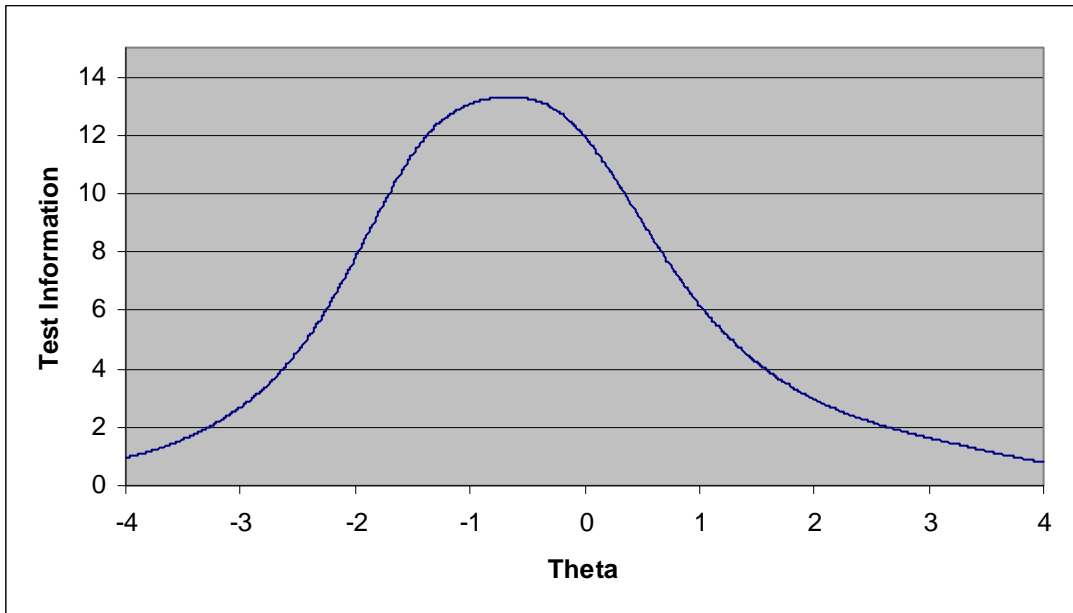


Figure J-16 2008–09 NECAP: Test Information Function (TIF)—Reading Grade 3

**Table J-17. 2008–09 NECAP: IRT Parameters  
Multiple-Choice Items—Reading Grade 4**

<i>Item Number</i>	<i>Parameters</i>		
	a	b	c
117971	0.729	-1.578	0.000
117915	0.672	-0.326	0.181
117901	1.167	-1.135	0.118
117902	0.474	-1.446	0.000
117903	0.561	-0.223	0.152
117900	0.844	-0.790	0.250
117863	1.560	-0.831	0.233
117864	1.088	-1.237	0.145
117865	1.345	-0.796	0.189
117866	1.341	-0.591	0.137
117867	0.730	-1.045	0.000
117868	1.147	-0.867	0.144
117870	0.783	-0.789	0.078
117869	0.810	-1.865	0.000
117872	0.898	-0.148	0.158
117873	1.004	0.280	0.180
117894	0.897	0.292	0.194
117897	0.714	0.815	0.231
117895	0.832	1.184	0.269
117874	1.097	0.229	0.254
117899	1.010	-1.250	0.087
117898	0.867	-0.510	0.191
117974	0.518	-1.351	0.095
117973	0.779	0.074	0.122
118008	0.616	-1.161	0.205
118009	0.905	0.314	0.383
118010	0.697	-0.584	0.308
118011	0.766	-2.075	0.000

a = discrimination; b = difficulty; c = guessing

**Table J-18. 2008–09 NECAP: IRT Parameters  
Constructed-Response Items—Reading Grade 4**

<i>Item Number</i>	<i>Parameters</i>					
	a	b	D1	D2	D3	D4
117904	0.705	-0.921	1.372	0.598	-0.366	-1.604
117879	0.605	-0.090	1.273	0.855	-0.755	-1.373
117871	0.779	0.488	2.281	0.788	-0.849	-2.220
117896	0.518	-0.132	2.194	1.410	-0.966	-2.638
117875	0.587	1.119	2.380	0.725	-0.789	-2.316
118012	0.403	-0.611	1.571	0.253	-0.405	-1.420

a = discrimination; b = difficulty; D1 = 1st category step parameter; D2 = 2nd category step parameter; D3 = 3rd category step parameter; D4 = 4th category step parameter

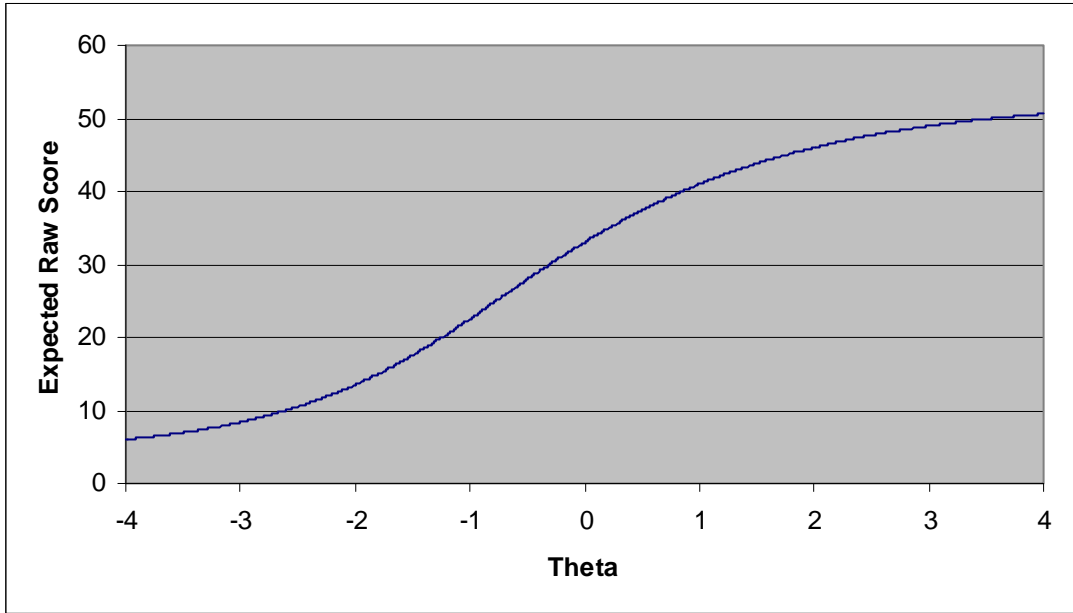


Figure J-17 2008–09 NECAP: Test Characteristic Curve (TCC)—Reading Grade 4

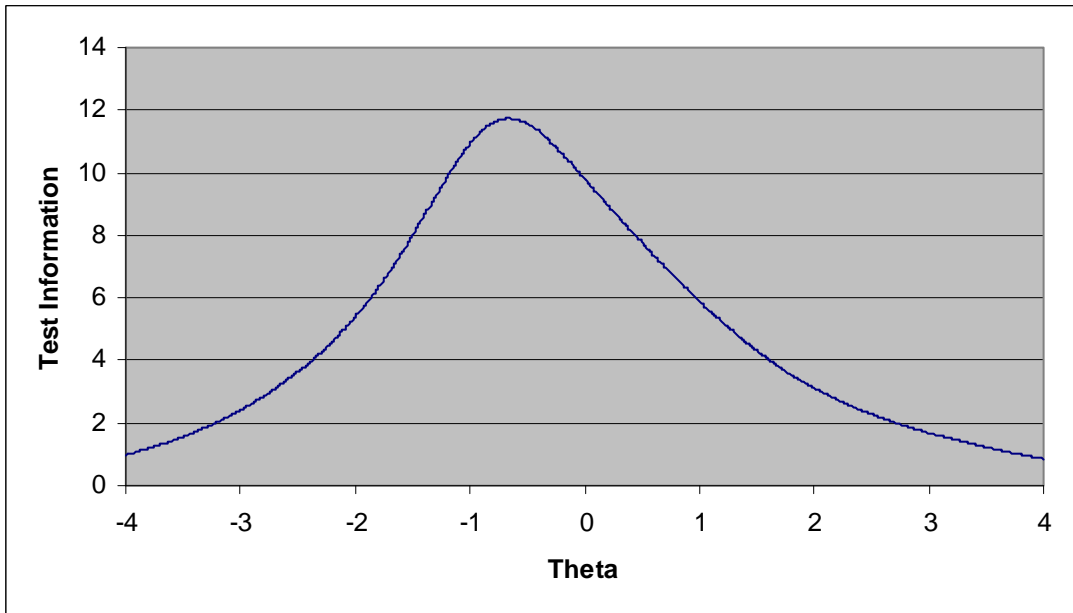


Figure J-18 2008–09 NECAP: Test Information Function (TIF)—Reading Grade 4

**Table J-19. 2008–09 NECAP: IRT Parameters  
Multiple-Choice Items—Reading Grade 5**

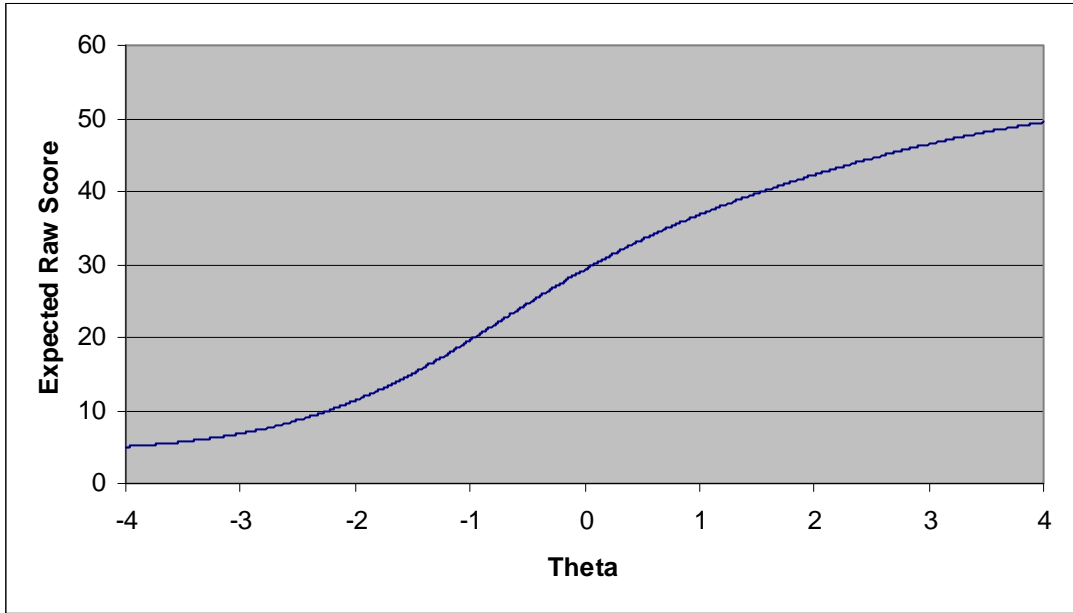
<i>Item Number</i>	<i>Parameters</i>		
	a	b	c
118061	0.671	-0.660	0.133
118121	0.697	-0.666	0.066
118068	1.333	-1.330	0.238
118069	1.217	-0.372	0.240
118070	0.235	0.046	0.068
118071	0.850	-0.200	0.247
118109	0.486	0.519	0.100
118111	0.876	-2.036	0.000
118110	0.813	-0.739	0.188
118112	0.606	-0.843	0.179
118113	0.776	-0.595	0.103
118115	1.002	-1.069	0.112
118116	0.682	0.241	0.101
118114	0.350	0.238	0.075
118093	0.736	-1.168	0.000
118094	0.872	0.013	0.154
118096	0.878	-1.054	0.083
118095	0.834	-0.215	0.164
118097	1.300	-1.163	0.115
118098	1.045	-0.758	0.219
118099	0.795	0.006	0.231
118100	1.219	-1.073	0.149
118119	0.902	-0.593	0.177
118063	0.823	-0.832	0.222
118034	0.534	-0.405	0.158
118036	1.185	-0.555	0.180
118035	0.353	-2.034	0.063
118066	0.777	0.658	0.195

a = discrimination; b = difficulty; c = guessing

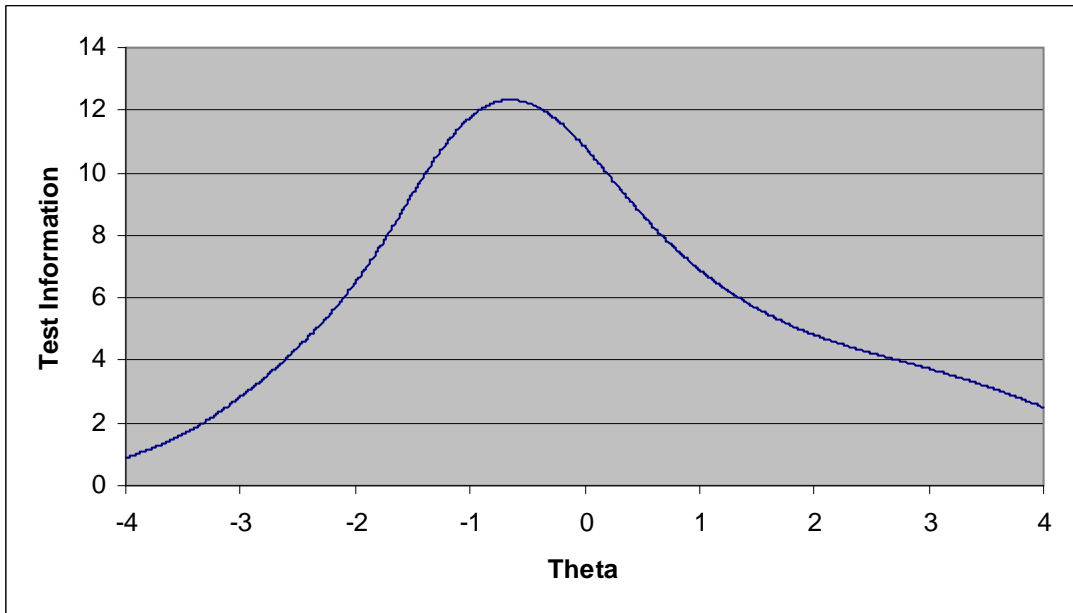
**Table J-20. 2008–09 NECAP: IRT Parameters  
Constructed-Response Items—Reading Grade 5**

<i>Item Number</i>	<i>Parameters</i>					
	a	b	D1	D2	D3	D4
118072	0.739	0.954	2.803	0.713	-0.933	-2.583
118118	0.659	1.085	2.706	0.425	-0.873	-2.258
118117	0.822	1.318	2.827	0.788	-1.091	-2.524
118102	0.869	0.688	3.059	0.623	-1.088	-2.594
118101	0.895	0.729	2.863	0.853	-0.927	-2.789
118037	1.048	0.232	2.447	0.786	-0.958	-2.274

a = discrimination; b = difficulty; D1 = 1st category step parameter; D2 = 2nd category step parameter; D3 = 3rd category step parameter; D4 = 4th category step parameter



**Figure J-19 2008–09 NECAP: Test Characteristic Curve (TCC)—Reading Grade 5**



**Figure J-20 2008–09 NECAP: Test Information Function (TIF)—Reading Grade 5**

**Table J-21. 2008–09 NECAP: IRT Parameters  
Multiple-Choice Items—Reading Grade 6**

<i>Item Number</i>	<i>Parameters</i>		
	a	b	c
118303	0.442	-1.755	0.111
118232	0.284	-1.868	0.062
118256	0.740	-0.707	0.090
118257	0.718	-0.834	0.133
118258	0.479	-1.985	0.000
118259	0.628	-1.211	0.053
118241	0.710	-1.083	0.058
118242	0.684	-2.334	0.000
118243	0.603	-1.653	0.085
118244	0.894	-1.701	0.062
118245	0.521	-1.150	0.000
118246	1.244	-1.813	0.067
118248	0.665	-1.635	0.000
118247	0.721	-1.437	0.000
118266	1.091	-1.011	0.117
118267	0.840	-0.744	0.155
118268	0.481	-0.993	0.000
118269	0.988	-1.331	0.093
118270	0.863	-0.908	0.081
118272	0.618	0.406	0.130
118271	1.396	-1.183	0.166
118273	0.876	-0.922	0.115
118302	0.718	-1.598	0.000
118305	0.783	-1.952	0.106
118276	0.593	-0.028	0.102
118277	0.506	-1.316	0.044
118278	0.819	-1.731	0.000
118279	0.907	-1.582	0.062

a = discrimination; b = difficulty; c = guessing

**Table J-22. 2008–09 NECAP: IRT Parameters  
Constructed-Response Items—Reading Grade 6**

<i>Item Number</i>	<i>Parameters</i>					
	a	b	D1	D2	D3	D4
118260	0.941	0.422	2.395	0.736	-0.887	-2.243
118249	0.932	0.117	2.131	0.897	-0.680	-2.347
118250	1.030	0.508	2.300	0.613	-0.841	-2.072
118275	1.178	0.086	1.942	0.711	-0.745	-1.908
118274	1.102	0.338	2.405	0.659	-0.910	-2.155
118280	0.794	0.041	3.138	0.908	-1.169	-2.877

a = discrimination; b = difficulty; D1 = 1st category step parameter; D2 = 2nd category step parameter; D3 = 3rd category step parameter; D4 = 4th category step parameter



Figure J-21 2008–09 NECAP: Test Characteristic Curve (TCC)—Reading Grade 6

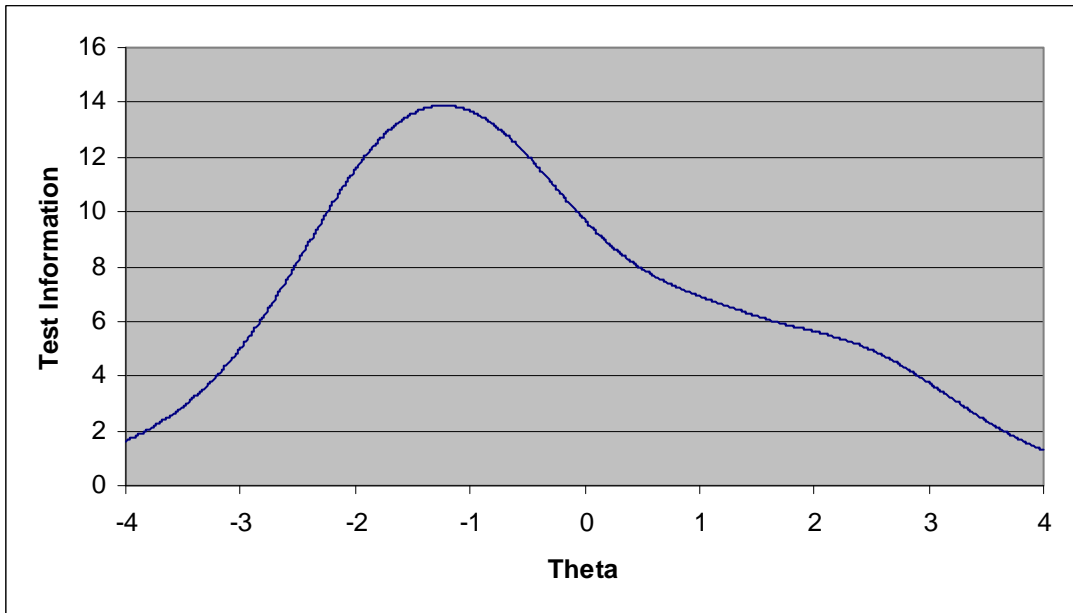


Figure J-22 2008–09 NECAP: Test Information Function (TIF)—Reading Grade 6

**Table J-23. 2008–09 NECAP: IRT Parameters  
Multiple-Choice Items—Reading Grade 7**

<i>Item Number</i>	<i>Parameters</i>		
	a	b	c
118479	0.868	-1.612	0.093
118474	0.542	-1.374	0.090
118406	0.414	-1.369	0.000
118405	0.798	-0.933	0.212
118407	0.818	-2.150	0.000
118408	0.366	-0.115	0.178
118435	0.632	-2.178	0.000
118436	0.515	-0.279	0.061
118437	0.657	-2.022	0.000
118438	0.750	-1.519	0.057
118440	0.574	-0.641	0.000
118439	0.905	-1.374	0.050
118441	0.681	-0.531	0.088
118434	0.867	-0.959	0.095
118410	0.449	1.036	0.190
118411	0.850	-1.594	0.161
118412	0.819	-1.726	0.090
118446	0.455	-0.512	0.033
118413	0.483	-0.256	0.026
118414	0.977	-1.188	0.123
118415	0.923	-0.993	0.103
118416	0.696	-2.139	0.000
118444	0.511	-1.041	0.107
118476	0.286	-0.003	0.000
118453	0.282	-2.342	0.100
118454	0.589	-2.382	0.000
118455	0.351	-1.973	0.057
118456	0.370	-1.447	0.000

a = discrimination; b = difficulty; c = guessing

**Table J-24. 2008–09 NECAP: IRT Parameters  
Constructed-Response Items—Reading Grade 7**

<i>Item Number</i>	<i>Parameters</i>					
	a	b	D1	D2	D3	D4
118409	0.963	-0.477	2.860	1.024	-1.129	-2.756
118443	1.210	0.180	1.877	0.867	-0.777	-1.967
118442	1.161	-0.003	2.177	0.620	-0.788	-2.009
118418	1.024	0.256	2.311	0.974	-1.050	-2.234
118417	0.944	0.018	2.374	0.647	-0.851	-2.170
118457	0.928	-0.383	2.700	0.971	-1.088	-2.583

a = discrimination; b = difficulty; D1 = 1st category step parameter; D2 = 2nd category step parameter; D3 = 3rd category step parameter; D4 = 4th category step parameter

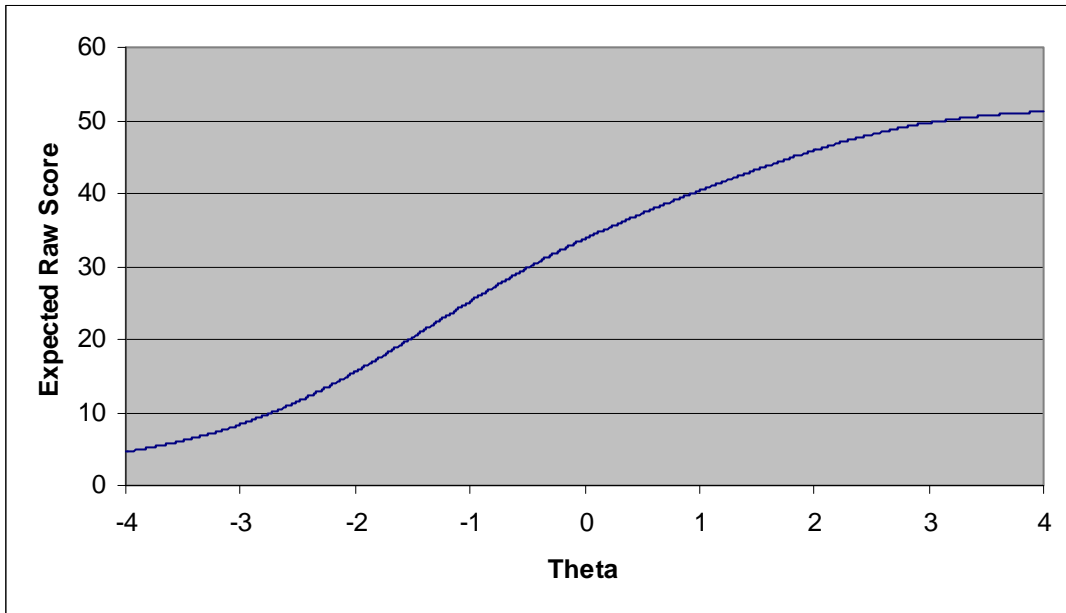


Figure J-23 2008–09 NECAP: Test Characteristic Curve (TCC)—Reading Grade 7

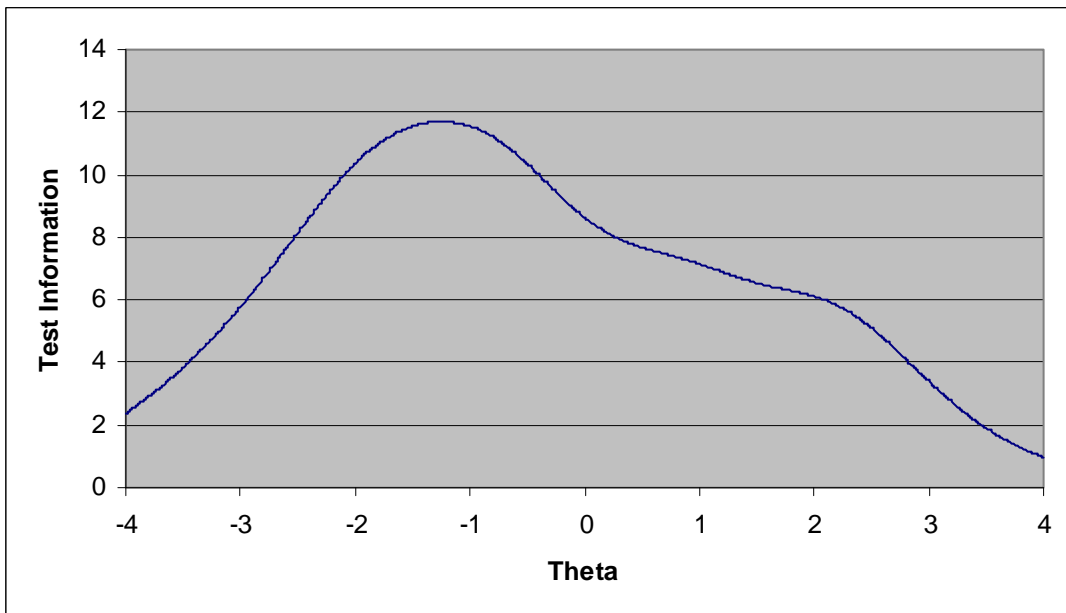


Figure J-24 2008–09 NECAP: Test Information Function (TIF)—Reading Grade 7

**Table J-25. 2008–09 NECAP: IRT Parameters  
Multiple-Choice Items—Reading Grade 8**

<i>Item Number</i>	<i>Parameters</i>		
	a	b	c
118615	0.474	-2.787	0.000
118616	0.663	-2.282	0.201
118636	0.857	-2.207	0.100
118637	0.783	-0.896	0.273
118638	0.317	-2.484	0.078
118639	0.843	-2.078	0.065
118662	0.650	-1.179	0.153
118664	0.448	-1.707	0.054
118663	0.860	-0.944	0.143
118665	0.853	-0.687	0.141
118666	0.479	-1.172	0.000
118667	0.964	-1.484	0.123
118668	0.704	-1.054	0.105
118669	0.648	-2.289	0.000
118599	0.243	-0.471	0.220
118600	0.493	-1.747	0.079
118601	0.505	-1.987	0.000
118602	0.640	-0.913	0.122
118603	0.486	-2.677	0.000
118604	0.433	-2.189	0.000
118605	0.499	0.659	0.079
118606	0.955	-1.691	0.136
118661	0.841	-1.358	0.151
118658	0.263	-1.652	0.000
118631	0.825	-1.677	0.106
118632	0.218	-1.672	0.000
118633	0.656	-0.595	0.136
118634	0.325	-1.710	0.000

a = discrimination; b = difficulty; c = guessing

**Table J-26. 2008–09 NECAP: IRT Parameters  
Constructed-Response Items—Reading Grade 8**

<i>Item Number</i>	<i>Parameters</i>					
	a	b	D1	D2	D3	D4
118640	1.002	-0.052	1.984	0.986	-0.779	-2.191
118670	1.217	0.014	2.424	0.779	-0.856	-2.347
118671	1.166	0.513	2.683	0.655	-0.981	-2.357
118608	0.856	0.344	2.719	1.106	-1.193	-2.632
118607	0.861	-0.111	2.739	0.782	-1.109	-2.413
118635	1.109	-0.263	2.211	0.655	-0.719	-2.148

a = discrimination; b = difficulty; D1 = 1st category step parameter; D2 = 2nd category step parameter; D3 = 3rd category step parameter; D4 = 4th category step parameter

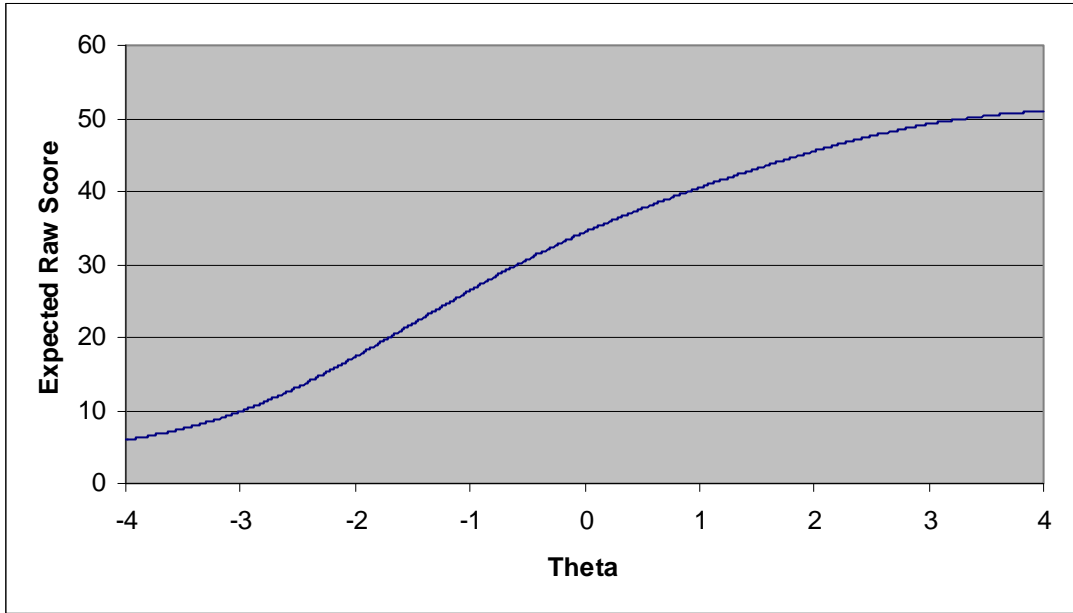


Figure J-25 2008–09 NECAP: Test Characteristic Curve (TCC)—Reading Grade 8

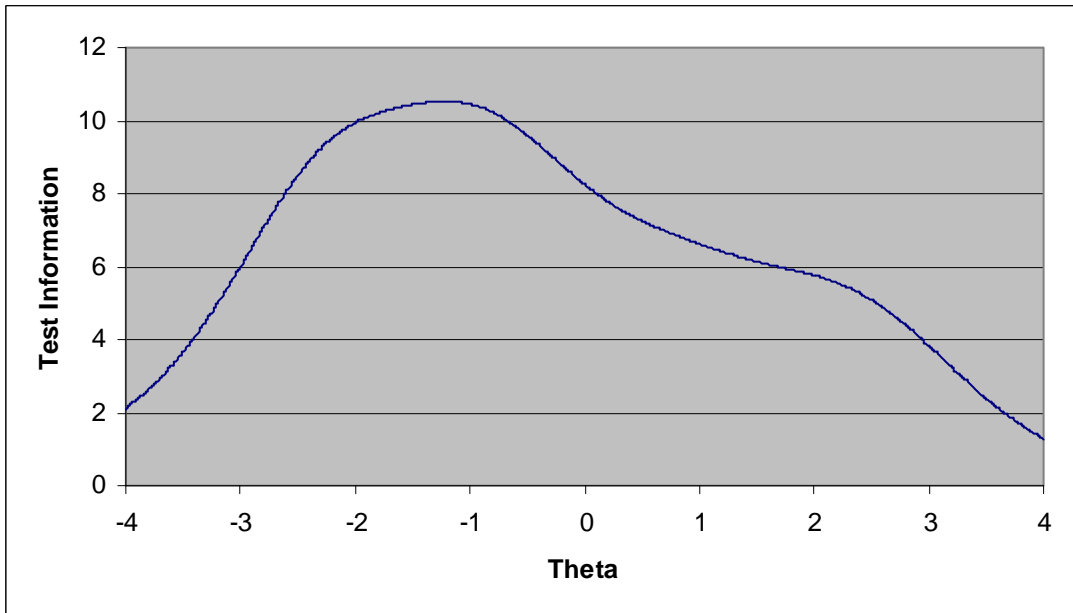


Figure J-26 2008–09 NECAP: Test Information Function (TIF)—Reading Grade 8

**Table J-27. 2008–09 NECAP: IRT Parameters  
Multiple-Choice Items—Reading Grade 11**

<i>Item Number</i>	<i>Parameters</i>		
	a	b	c
118827	0.784	-1.103	0.354
118786	0.374	1.037	0.267
118784	0.555	-1.561	0.196
118828	0.241	-1.795	0.000
118801	0.486	-1.333	0.087
118807	0.594	-0.894	0.000
118802	0.660	-0.725	0.089
118803	0.604	-0.642	0.084
118804	0.891	-1.261	0.130
118806	0.798	-1.252	0.083
118805	0.357	0.094	0.099
118808	0.664	-2.469	0.000
118778	0.643	-2.095	0.000
118779	0.546	-0.724	0.064
118780	0.510	-1.266	0.000
118781	0.894	-0.909	0.156
118755	0.593	-0.516	0.168
118754	0.471	-1.505	0.000
118753	0.639	-0.865	0.090
118756	0.561	-0.429	0.120
118816	0.307	-2.162	0.000
118817	0.491	-1.046	0.134
118818	0.824	-0.662	0.165
118819	0.613	-1.056	0.084
118820	0.871	-1.561	0.076
118822	0.731	-1.393	0.000
118821	0.876	-0.495	0.101
118823	0.370	-0.282	0.000

a = discrimination; b = difficulty; c = guessing

**Table J-28. 2008–09 NECAP: IRT Parameters  
Constructed-Response Items—Reading Grade 11**

<i>Item Number</i>	<i>Parameters</i>					
	a	b	D1	D2	D3	D4
118809	1.000	-0.226	2.202	0.994	-0.834	-2.362
118810	1.205	-0.159	1.837	0.762	-0.706	-1.893
118782	1.295	-0.369	1.690	0.664	-0.648	-1.705
118757	1.307	0.343	2.000	0.741	-0.760	-1.981
118824	1.094	-0.207	2.223	0.989	-0.894	-2.319
118825	1.249	0.266	1.895	0.797	-0.715	-1.976

a = discrimination; b = difficulty; D1 = 1st category step parameter; D2 = 2nd category step parameter; D3 = 3rd category step parameter; D4 = 4th category step parameter

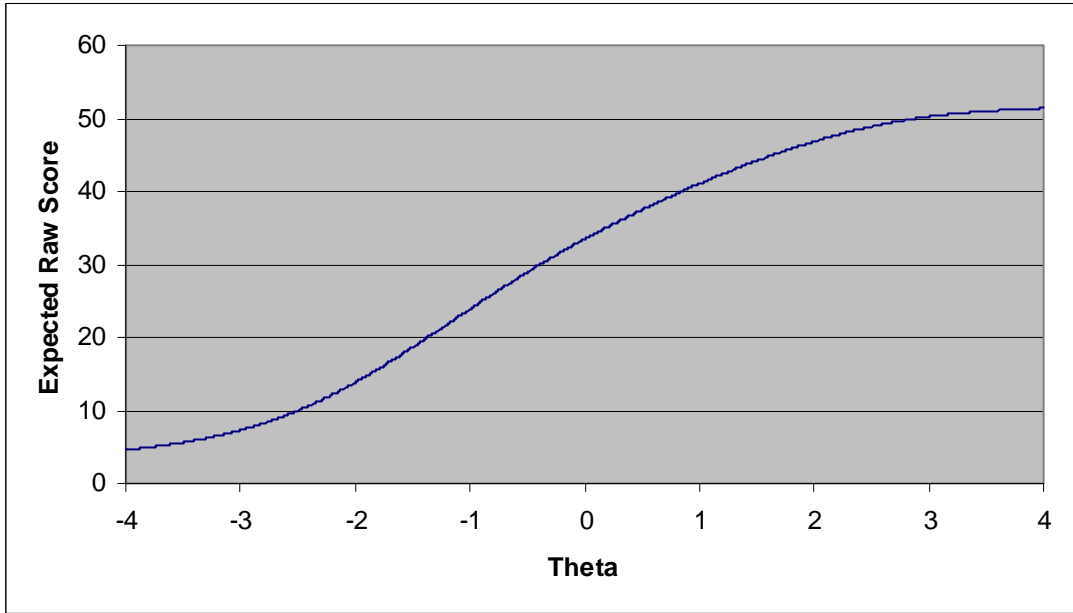


Figure J-27 2008–09 NECAP: Test Characteristic Curve (TCC)—Reading Grade 11

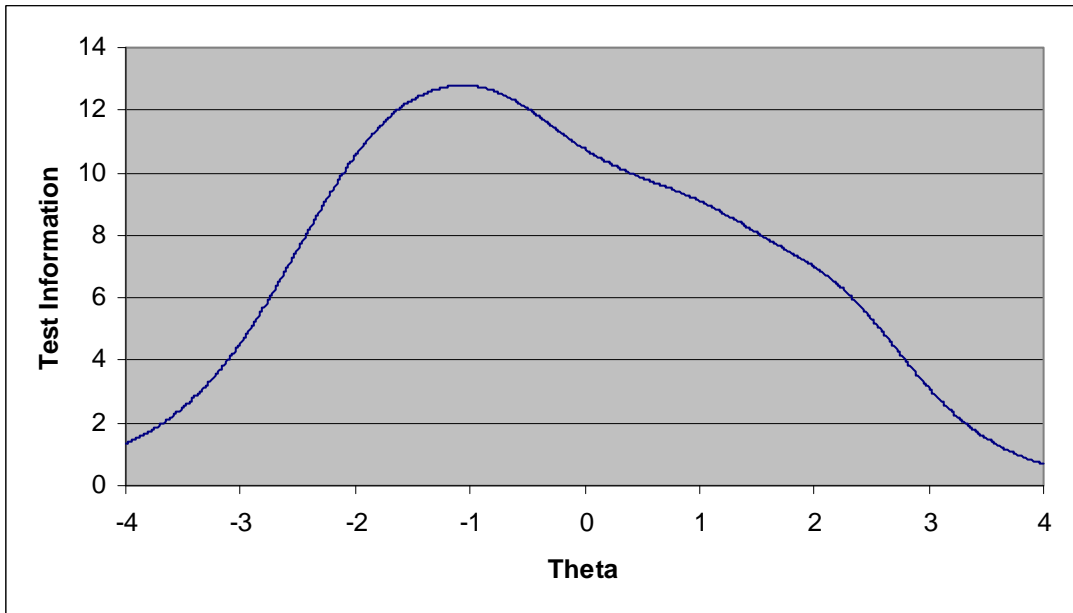


Figure J-28 2008–09 NECAP: Test Information Function (TIF)—Reading Grade 11

**Table J-29. 2008–09 NECAP: IRT Parameters  
Multiple-Choice Items—Writing Grade 5**

<i>Item Number</i>	<i>Parameters</i>		
	a	b	c
213392	0.686	-0.831	0.035
213395	0.688	-1.607	0.042
202780	0.674	-0.802	0.117
202839	0.692	-1.858	0.058
213142	0.410	-2.115	0.110
202776	0.395	1.181	0.092
213157	0.539	-1.479	0.070
202834	0.735	-1.668	0.070
213382	0.800	-1.536	0.071
202790	0.574	-0.944	0.078

a = discrimination; b = difficulty; c = guessing

**Table J-30. 2008–09 NECAP: IRT Parameters  
Constructed-Response Items—Writing Grade 5**

<i>Item Number</i>	<i>Parameters</i>											
	a	b	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10
201852	0.656	0.000	3.319	1.299	-2.212	-4.706	N/A	N/A	N/A	N/A	N/A	N/A
201810	0.767	0.000	3.389	0.802	-1.605	-3.823	N/A	N/A	N/A	N/A	N/A	N/A
201953	0.642	0.000	2.944	1.435	-1.891	-4.462	N/A	N/A	N/A	N/A	N/A	N/A
213658	0.551	0.000	2.999	2.106	0.999	0.389	-0.788	-1.394	-2.663	-3.45228	-4.99514	-6.03287

a = discrimination; b = difficulty; D1 = 1st category step parameter; D2 = 2nd category step parameter; D3 = 3rd category step parameter; D4 = 4th category step parameter; ...; D10 = 10th category step parameter

Note: Short-answer items are not included in this table because they were not part of the final calibration.

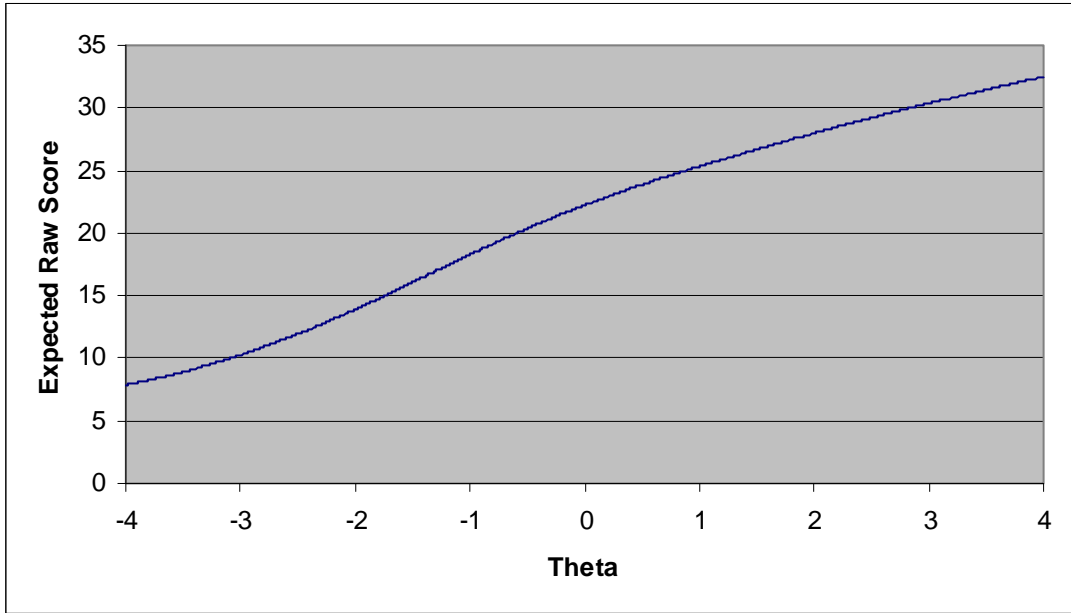


Figure J-29 2008–09 NECAP: Test Characteristic Curve (TCC)—Writing Grade 5

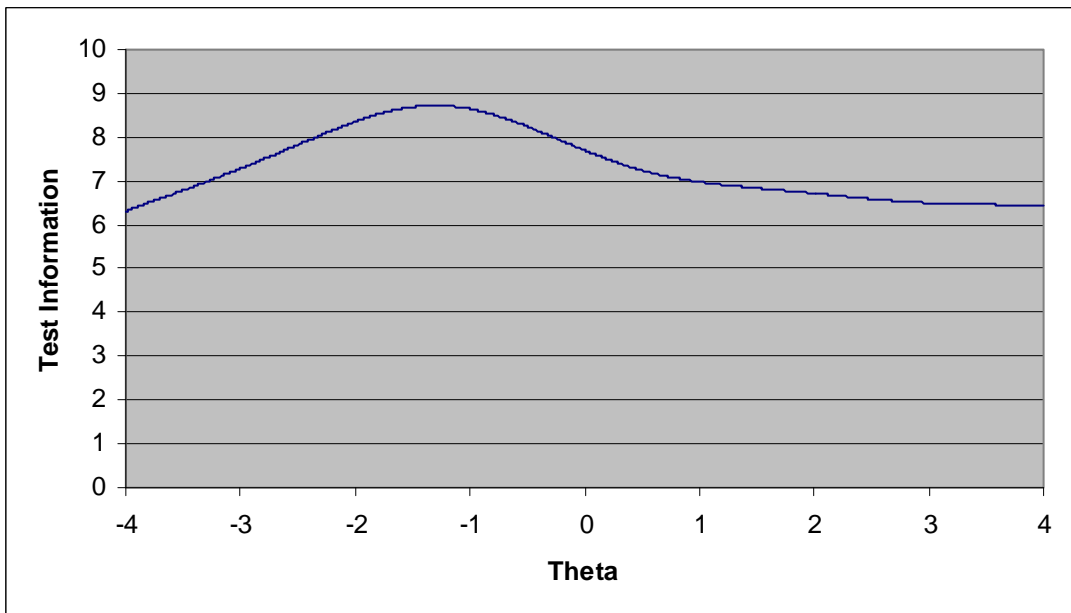


Figure J-30 2008–09 NECAP: Test Information Function (TIF)—Writing Grade 5

**Table J-31. 2008–09 NECAP: IRT Parameters  
Multiple-Choice Items—Writing Grade 8**

<i>Item Number</i>	<i>Parameters</i>		
	a	b	c
202653	0.805	-2.012	0.200
202602	0.808	-1.818	0.031
202641	0.592	-1.921	0.125
212964	0.550	0.507	0.076
212975	0.585	-1.582	0.084
202647	0.629	-0.731	0.063
212960	0.907	-0.962	0.027
202670	0.770	-0.483	0.079
212970	1.325	-1.569	0.000
202642	0.581	-0.160	0.094

a = discrimination; b = difficulty; c = guessing

**Table J-32. 2008–09 NECAP: IRT Parameters  
Constructed-Response Items—Writing Grade 8**

<i>Item Number</i>	<i>Parameters</i>											
	a	b	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10
202423	1.006	0.000	2.878	1.252	-0.813	-2.531	N/A	N/A	N/A	N/A	N/A	N/A
202450	1.021	0.000	2.495	1.236	-0.321	-2.143	N/A	N/A	N/A	N/A	N/A	N/A
202453	0.875	0.000	2.752	1.327	-0.886	-2.649	N/A	N/A	N/A	N/A	N/A	N/A
213712	0.654	0.000	2.853	2.168	1.209	0.610	-0.243	-0.667	-1.495	-2.00649	-3.01014	-4.09554

a = discrimination; b = difficulty; D1 = 1st category step parameter; D2 = 2nd category step parameter; D3 = 3rd category step parameter; D4 = 4th category step parameter; ...; D10 = 10th category step parameter

Note: Short-answer items are not included in this table because they were not part of the final calibration.

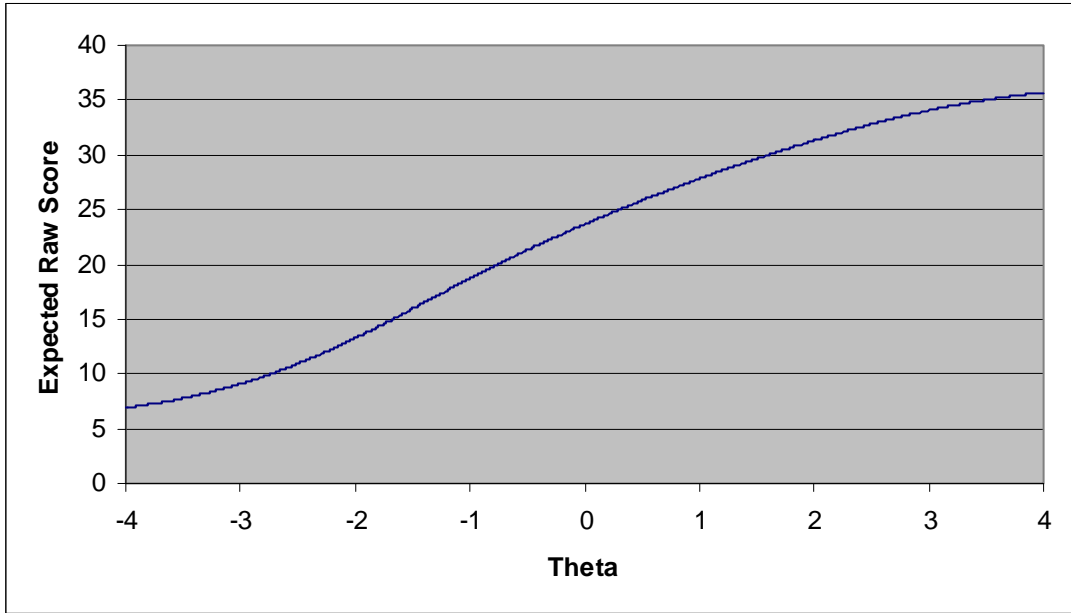


Figure J-31 2008–09 NECAP: Test Characteristic Curve (TCC)—Writing Grade 8

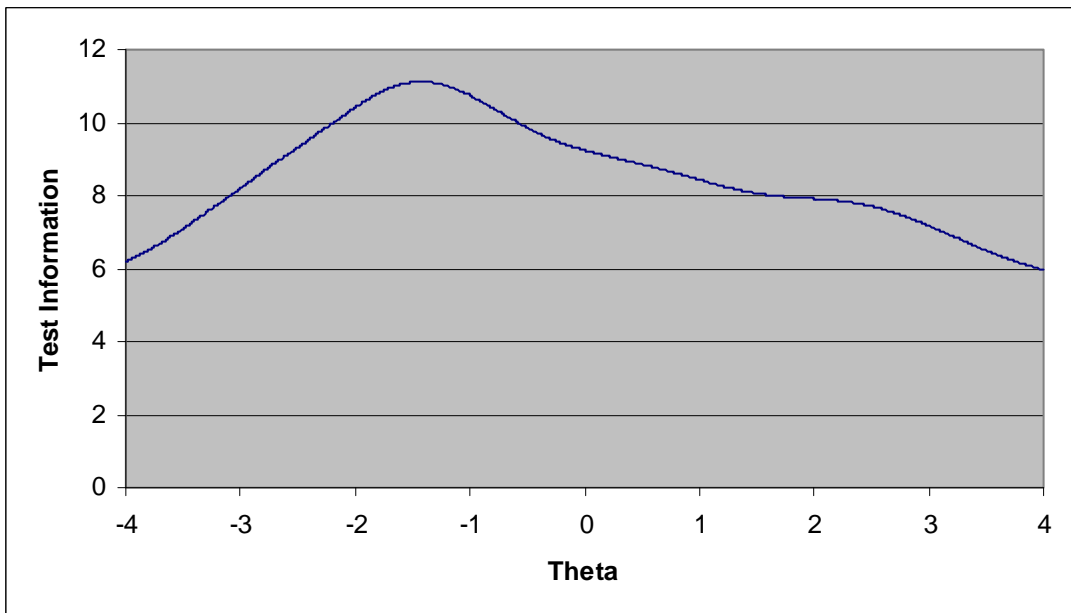


Figure J-32 2008–09 NECAP: Test Information Function (TIF)—Writing Grade 8