

Maryland High School Assessment May 2002  
Summary of Test Results

Table 1. Proportion of Students in Total Sample

	Algebra	Biology	English	Geometry	Government
Female	49.6	49.6	49.0	50.1	49.3
Male	49.3	50.0	50.1	48.5	50.4
African American	32.4	33.6	34.6	28.6	33.4
American Indian	0.3	0.3	0.4	0.3	0.4
Asian	5.3	5.7	5.1	6.1	5.6
Hispanic	4.7	4.4	4.3	4.3	4.4
White	55.8	54.6	54.2	59.1	54.8
Other	1.5	1.4	1.5	1.7	1.5
Baltimore City	7.8	7.1	6.3	6.2	4.3

Table 2. Number of Items in Each Test Form

	Form	Item Type	SR	SPR	BCR	ECR
Algebra	S	OP	26	6	3	2
		FT	6	2	1	2
	T	ANC	27	-	-	-
		FT	23	6	3	3
	U	ANC	27	-	-	-
		FT	18	7	4	3
	V	FT	32	8	4	4
W	FT	32	8	4	4	
X	FT	32	8	4	4	
Biology	Q	OP	48	-	7	-
		FT	10	-	2	-
	T	ANC	26	-	-	-
		FT	52	-	7	-
	U	FT	58	-	9	-
V	FT	58	-	9	-	
W	FT	58	-	9	-	
English	S	OP	50	-	2	1
		FT	20	-	1	-
	V	ANC	28	-	-	-
		FT	44	-	2	1
	W	FT	70	-	3	1
X	FT	69	-	3	1	
Y	FT	70	-	3	1	
Geometry	T	OP	26	6	2	3
		FT	6	2	1	1
	V	ANC	30	-	-	-
		FT	21	6	2	3
W	FT	33	8	3	4	

Table 2. Number of Items in Each Test Form (Continued)

	Form	Item Type	SR	SPR	BCR	ECR
Government	Q	OP	50	-	7	1
		FT	24	-	1	-
	T	ANC	25	-	-	-
		FT	49	-	8	1
	U	FT	74	-	8	1
	V	FT	74	-	8	1
	W	FT	74	-	8	1
	X	FT	74	-	8	1

Table 3. Distribution of Mean Percent Correct (p-values) for Selected-Response Items

Mean Percent Correct	Algebra (% of items)	Biology (% of items)	English (% of items)	Geometry (% of items)	Government (% of items)
>.80	6.3	6.4	7.0	-	6.2
.71 - .80	14.7	8.1	16.9	6.7	14.1
.61 - .70	25.9	16.1	27.8	13.3	21.1
.51 - .60	18.9	25.8	20.8	15.0	20.9
.41 - .50	15.4	21.6	13.9	21.7	17.9
.30 - .40	7.7	18.6	8.4	26.7	13.0
<.30	11.2	3.4	5.1	16.7	6.8
Total Number of Items	143	236	273	60	369
Mean	0.564	0.534	0.589	0.455	0.556
SD	0.176	0.155	0.158	0.152	0.167
Min	0.16	0.20	0.13	0.19	0.14
Max	0.91	0.94	0.93	0.78	0.95

Table 4. Distribution of Mean Percent Correct (p-values) for Student-Produced Response Items

Mean Percent Correct	Algebra (% of items)	Geometry (% of items)
>.80	5.1	-
.71 - .80	15.4	-
.61 - .70	33.3	-
.51 - .60	12.8	12.5
.41 - .50	25.6	31.3
.30 - .40	5.1	37.5
<.30	2.6	18.8
Total Number of Items	39	16
Mean	0.592	0.372
SD	0.144	0.139
Min	0.21	0.11
Max	0.86	0.59

Table 5. Distribution of Mean Percent of Total Possible Number of Points for Brief Constructed-Response Items

Mean of Percent Of Total Possible Points	Algebra (% of items)	Biology <sup>a</sup> (% of items)	English (% of items)	Geometry (% of items)	Government (% of items)
>.80	-	-	-	-	-
.71 - .80	-	-	-	-	-
.61 - .70	5.0	-	-	-	-
.51 - .60	25.0	-	41.7	33.3	-
.41 - .50	20.0	5.6	58.3	16.7	32.6
.30 - .40	40.0	36.1	-	50.0	58.7
<.30	10.0	58.3	-	-	8.7
Number of Points Possible per Item	3	4	4	3	4
Total Number of Items	20	36	12	6	46
Mean	0.428	0.296	0.491	0.435	0.379
SD	0.110	0.578	0.042	0.104	0.052
Min	0.19	0.19	0.41	0.30	0.22
Max	0.62	0.42	0.55	0.55	0.46

Note. <sup>a</sup>There is no distinction between Biology BCR and ECR items; these Biology items are considered to be the same (CR). All Biology CR items are included in this table.

Table 6. Distribution of Mean Percent of Total Possible Number of Points for Extended Constructed-Response Items

Mean of Percent Of Total Possible Points	Algebra (% of items)	Biology <sup>a</sup> (% of items)	English (% of items)	Geometry (% of items)	Government (% of items)
>.80	-	-	-	-	-
.71 - .80	-	-	-	-	-
.61 - .70	10.0	-	-	-	-
.51 - .60	15.0	-	100.0	25.0	-
.41 - .50	35.0	-	-	-	20.0
.30 - .40	25.0	-	-	62.5	80.0
<.30	15.0	-	-	12.5	-
Number of Points Possible per Item	4	-	6	4	4
Total Number of Items	20	-	4	8	5
Mean	0.424	-	0.558	0.386	0.394
SD	0.131	-	0.026	0.117	0.015
Min	0.12	-	0.52	0.20	0.38
Max	0.62	-	0.58	0.56	0.42

Note. <sup>a</sup>There is no distinction between Biology BCR and ECR items; these Biology items are considered to be the same (CR). All Biology CR items are included in Table 5.

Table 7. Percent Distributions of Item-Total Correlations for Selected-Response Items

Correlation	Algebra (% of items)	Biology (% of items)	English (% of items)	Geometry (% of items)	Government (% of items)
>.54	1.4	0.8	1.8	5.0	4.3
.45 - .54	18.9	23.3	30.0	36.7	28.5
.35 - .44	35.7	39.0	30.0	26.7	33.6
.25 - .34	27.3	21.2	19.4	13.3	18.4
.15 - .24	11.2	13.1	12.8	10.0	10.3
<.15	5.6	2.5	5.9	8.3	4.9
Total Number of Items	143	236	273	60	369
Mean	0.347	0.365	0.362	0.384	0.374
SD	0.125	0.102	0.132	0.127	0.125
Min	-0.16	0.10	-0.12	0.05	-0.13
Max	0.12	0.56	0.59	0.61	0.60

Table 8. Percent Distributions of Item-Total Correlations for Student Produced Response Items

Correlation	Algebra (% of items)	Geometry (% of items)
>.54	7.7	75.0
.45 - .54	38.5	12.5
.35 - .44	43.6	6.25
.25 - .34	7.7	6.25
.15 - .24	2.6	-
<.15	-	-
Total Number of Items	39	16
Mean	0.436	0.563
SD	0.080	0.112
Min	0.18	0.28
Max	0.57	0.67

Table 9. Distributions of Item-Total Correlations for Brief Constructed-Response Items

Correlation	Algebra (% of items)	Biology <sup>a</sup> (% of items)	English (% of items)	Geometry (% of items)	Government (% of items)
>.54	70.0	86.1	91.7	83.3	97.8
.45 - .54	30.0	13.9	8.3	16.7	-
.35 - .44	-	-	-	-	2.2
.25 - .34	-	-	-	-	-
.15 - .24	-	-	-	-	-
<.15	-	-	-	-	-
Total Number of Items	20	36	12	6	46
Mean	0.566	0.614	0.638	0.600	0.626
SD	0.063	0.060	0.045	0.077	0.052
Min	0.45	0.46	0.51	0.51	0.44
Max	0.65	0.71	0.68	0.70	0.73

Note. <sup>a</sup>There is no distinction between Biology BCR and ECR items; these Biology items are considered to be the same (CR). All Biology CR items are included in this table.

Table 10. Distributions of Item-Total Correlations for Extended Constructed-Response Items

Correlation	Algebra (% of items)	Biology <sup>a</sup> (% of items)	English (% of items)	Geometry (% of items)	Government (% of items)
>.54	85.0	-	100.0	100.0	86.1
.45 - .54	10.0	-	-	-	13.9
.35 - .44	5.0	-	-	-	-
.25 - .34	-	-	-	-	-
.15 - .24	-	-	-	-	-
<.15	-	-	-	-	-
Total Number of Items	20	-	4	8	36
Mean	0.610	-	0.590	0.694	0.614
SD	0.075	-	0.046	0.040	0.060
Min	0.42	-	0.55	0.63	0.46
Max	0.71	-	0.63	0.74	0.71

Note. <sup>a</sup>There is no distinction between Biology BCR and ECR items; these Biology items are considered to be the same (CR). All Biology CR items are included in Table 9.

Table 11. Number of Items Flagged for DIF Against the Group using Mantel Haenszel (SR/SPR items) and Mantel (CR items) Procedures<sup>a</sup>

		African American	Asian American	Hispanic American	Female	Male	Number of Flagged Items <sup>b</sup>	Total Number Of DIF Items Flagged
Algebra	SR	-	6	2	2	-	8	10
	SPR	-	1	-	1	-	1	2
	BCR	-	-	-	-	-	-	-
	ECR	-	-	-	-	-	-	-
Biology	SR	-	4	1	-	-	4	5
	CR	-	-	-	-	-	-	-
English	SR	1	5	-	1	-	7	7
	BCR	-	-	-	-	-	-	-
	ECR	-	-	-	-	-	-	-
Geometry	SR	-	1	-	2	-	3	3
	SPR	-	-	-	-	-	-	-
	BCR	-	-	-	-	-	-	-
	ECR	-	-	-	-	-	-	-
Government	SR	-	3	1	4	-	7	8
	BCR	-	-	-	-	-	-	-
	ECR	-	-	-	-	-	-	-

Note. <sup>a</sup>The minimum focal group sample size used was 200 for SR items and 500 for CR items. CR items were flagged if Mantel  $\chi^2 > 0$  ( $p < .05$ ) &  $SMD \geq 0.25$ , where  $SMD$  = mean difference divided by total standard deviation.

<sup>b</sup>If an item was flagged for DIF against more than one focal group the item was included only once in this column total.

Table 12. Summary Statistics for Total Raw Score Distributions and Test Reliability

	N Students	Total Possible Score	Mean Score	SD	Raw Scores At These Percentiles					Reliability	SEM
					5 <sup>th</sup>	25 <sup>th</sup>	50 <sup>th</sup>	75 <sup>th</sup>	95 <sup>th</sup>		
<b>Algebra</b>											
Form S	11146	68	32.03	15.75	6	20	33	45	56	0.939	3.90
Form T	9669	77	36.90	16.12	11	25	37	49	62	0.943	3.86
Form U	10139	76	34.43	14.94	9	25	35	45	59	0.939	3.69
Form V	9977	68	32.01	15.31	7	21	32	44	57	0.930	4.05
Form W	9916	68	28.98	14.96	5	18	28	40	55	0.929	3.99
Form X	9690	68	32.18	15.65	7	20	32	44	57	0.936	3.96
<b>Biology</b>											
Form Q	10403	94	40.52	18.37	15	27	39	54	72	0.946	4.26
Form T	9406	106	46.79	19.47	19	33	45	61	80	0.952	4.25
Form U	9351	94	40.06	17.51	15	27	39	53	70	0.948	3.99
Form V	9206	94	39.55	16.66	15	27	38	51	68	0.946	3.86
Form W	9078	94	37.79	15.71	15	26	37	48	65	0.940	3.84
<b>English</b>											
Form S	10472	88	48.28	20.63	14	32	51	65	77	0.958	4.22
Form V	9683	86	49.02	18.35	17	36	53	64	73	0.951	4.07
Form W	9613	88	47.22	17.70	17	35	50	61	72	0.943	4.22
Form X	9506	87	45.31	17.00	17	34	47	58	69	0.939	4.21
Form Y	9316	88	48.19	18.03	17	36	51	62	73	0.946	4.19
<b>Geometry</b>											
Form T	14788	65	27.74	16.00	3	15	26	40.5	55	0.949	3.60
Form V	14152	75	29.88	16.79	3	17	27	42	60	0.946	3.89
Form W	13974	66	25.61	15.71	3	12	23	38	54	0.943	3.75
<b>Government</b>											
Form Q	9106	110	54.69	23.50	19	36	55	73	91	0.964	4.48
Form T	8315	110	52.21	20.08	20	38	53	67	84	0.952	4.39
Form U	8199	110	48.13	20.81	17	32	47	64	82	0.954	4.47
Form V	8155	110	51.23	20.45	19	36	52	67	83	0.953	4.43
Form W	8090	110	51.31	21.26	19	35	52	68	85	0.958	4.37
Form X	7896	110	52.21	21.63	19	35	54	69	85	0.960	4.33

Table 13. Summary of Test Completion Rates.

	Percent Who Answered All Items	Percent Who Answered All SR and SPR Items	Percent Who Answered These Numbers of BCR Items											Percent Who Answered These Numbers of ECR Items					
			0	1	2	3	4	5	6	7	8	9	10	0	1	2	3	4	5
<b>Algebra</b>																			
Form S	3	57	10	6	10	21	53	-	-	-	-	-	-	6	7	7	12	68	-
Form T	15	58	16	14	6	64	-	-	-	-	-	-	-	7	11	21	62	-	-
Form U	1	59	13	8	11	21	47	-	-	-	-	-	-	7	19	27	46	-	-
Form V	3	62	8	6	8	23	55	-	-	-	-	-	-	9	6	8	15	62	-
Form W	2	47	8	5	9	17	61	-	-	-	-	-	-	11	8	12	21	49	-
Form X	9	56	9	5	8	17	61	-	-	-	-	-	-	10	8	10	18	54	-
<b>Biology</b>																			
Form Q	47	84	5	3	2	3	3	4	6	9	14	51	-	-	-	-	-	-	-
Form T	48	84	8	4	4	5	6	9	12	51	-	-	-	-	-	-	-	-	-
Form U	47	81	4	2	2	3	3	5	6	9	13	53	-	-	-	-	-	-	-
Form V	50	80	6	2	2	2	3	4	5	7	13	57	-	-	-	-	-	-	-
Form W	46	83	4	2	3	3	4	5	6	9	14	51	-	-	-	-	-	-	-
<b>English</b>																			
Form S	58	85	11	11	14	64	-	-	-	-	-	-	-	17	83	-	-	-	-
Form V	67	89	11	16	73	-	-	-	-	-	-	-	-	15	85	-	-	-	-
Form W	66	87	9	5	12	74	-	-	-	-	-	-	-	18	82	-	-	-	-
Form X	63	88	12	9	11	69	-	-	-	-	-	-	-	16	84	-	-	-	-
Form Y	64	88	9	9	13	70	-	-	-	-	-	-	-	17	83	-	-	-	-
<b>Geometry</b>																			
Form T	1	56	13	8	15	64	-	-	-	-	-	-	-	11	7	10	16	57	-
Form V	7	54	15	16	69	-	-	-	-	-	-	-	-	15	8	16	60	-	-
Form W	4	60	8	8	17	67	-	-	-	-	-	-	-	10	6	8	16	59	-
<b>Government</b>																			
Form Q	58	88	6	2	2	3	3	4	6	11	62	-	-	15	85	-	-	-	-
Form T	58	88	5	2	2	3	4	4	6	11	62	-	-	16	84	-	-	-	-
Form U	52	87	10	2	2	3	4	4	6	12	57	-	-	24	76	-	-	-	-
Form V	51	87	6	2	3	3	4	5	7	12	57	-	-	27	73	-	-	-	-
Form W	52	87	5	2	3	3	4	5	7	12	57	-	-	25	75	-	-	-	-
Form X	56	87	7	2	2	3	3	4	6	12	60	-	-	17	83	-	-	-	-