

## **APPENDIX A**

### **COMPARISON OF MCAS 2008 COMMON AND EQUATING ITEM SETS**



The tables in Appendix A compare the following information, by subject area, for the common and equating item sets that appeared in the 2008 MCAS standard tests:

- A. Number of Each Item Type and Number of Points Possible .....Appendix A, Page 2
- B. Reporting Category Point Distribution .....Appendix A, Page 3
- C. Difficulty and Discrimination .....Appendix A, Page 5

## Appendix A

### A. Number of Each Item Type and Number of Points Possible

#### Key for tables A1 through A3:

MC = multiple-choice items, each with a total of 1 point possible  
 SA = short-answer items, each with a total of 1 point possible  
 OR = open-response items, each with a total of 4 points possible  
 WP = writing prompts, each with a total of 20 points possible

**Table A1: 2008 MCAS English Language Arts  
 Common and Equating Item Set Comparison  
 Number of Items by Item Type  
 and Total Possible Points**

Grade	Common				Equating			
	MC	OR	WP	Total Points	MC	OR	WP	Total Points
3	40	2	0	48	32	4	0	48
4	36	4	1	72	36	6	0	60
5	36	4	0	52	36	6	0	60
6	36	4	0	52	36	6	0	60
7	36	4	1	72	36	6	0	60
8	36	4	0	52	36	6	0	60
10	36	4	1	72	36*	4*	1*	72

\* Because Grade 10 was pre-equated, the common items functioned as the equating link

**Table A2: 2008 MCAS Mathematics  
 Common and Equating Item Set Comparison  
 Number of Items by Item Type  
 and Total Possible Points**

Grade	Common				Equating			
	MC	SA	OR	Total Points	MC	SA	OR	Total Points
3	25	5	5	40	25	5	5	40
4	29	5	5	54	29	5	5	54
5	29	5	5	54	29	5	5	54
6	29	5	5	54	29	5	5	54
7	29	5	5	54	29	5	5	54
8	29	5	5	54	29	5	5	54
10	32	4	6	60	32*	4*	6*	60

\* Because Grade 10 was pre-equated, the common items functioned as the equating link

**Table A3: 2008 MCAS Science and Technology/Engineering  
 Common and Equating Item Set Comparison  
 Number of Items by Item Type  
 and Total Possible Points**

HSBio = High School Biology / HSPHys = High School Introductory Physics

HSChem = High School Chemistry / HSTech/Eng = High School Technology/Engineering

Grade and Test	Common			Equating		
	MC	OR	Total Points	MC	OR	Total Points
5	34	5	54	34	5	54
8	34	5	54	34	5	54
HSBio	40	5	60	40*	5*	60
HSChem	40	5	60	40*	5*	60
HSPHys	40	5	60	40*	5*	60
HSTech/Eng	40	5	60	40*	5*	60

\* Because Grade 10 was pre-equated, the common items functioned as the equating link

## B. Reporting Category Point Distribution

**Table A4: 2008 MCAS English Language Arts  
Common and Equating Item Set Comparison  
Reporting Category Point Distribution**

Reporting Category	Grade													
	3		4		5		6		7		8		10	
	C	E	C	E	C	E	C	E	C	E	C	E	C	E*
<b>Language</b>	9	5	6	7	7	5	5	4	7	5	6	6	5	5
<b>Literature</b>	39	43	46	53	45	55	47	56	45	55	46	54	47	47
<b>Composition</b>	0	0	20	0	0	0	0	0	20	0	0	0	20	20
<b>TOTAL</b>	<b>48</b>	<b>48</b>	<b>72</b>	<b>60</b>	<b>52</b>	<b>60</b>	<b>52</b>	<b>60</b>	<b>72</b>	<b>60</b>	<b>52</b>	<b>60</b>	<b>72</b>	<b>72</b>

\* Because Grade 10 was pre-equated, the common items functioned as the equating link

**Table A5: 2008 MCAS Mathematics  
Common and Equating Item Set Comparison  
Reporting Category Point Distribution**

Reporting Category*	Grade													
	3		4		5		6		7		8		10	
	C	E	C	E	C	E	C	E	C	E	C	E	C	E†
<b>NS&amp;O</b>	14	12	19	18	18	18	18	18	13	14	14	10	12	12
<b>PR&amp;A</b>	8	8	11	12	14	14	14	14	15	15	15	14	18	18
<b>Geo</b>	5	6	8	7	7	7	7	7	7	7	7	8	9	9
<b>Meas</b>	5	6	6	7	7	7	7	7	7	7	7	10	10	10
<b>DataAn</b>	8	8	10	10	8	8	8	8	12	11	11	12	11	11
<b>TOTAL</b>	<b>40</b>	<b>40</b>	<b>54</b>	<b>54</b>	<b>54</b>	<b>54</b>	<b>54</b>	<b>54</b>	<b>54</b>	<b>54</b>	<b>54</b>	<b>54</b>	<b>60</b>	<b>60</b>

\* NS&O = Number Sense and Operations

PR&A = Patterns, Relations, and Algebra

Geo = Geometry

Meas = Measurement

DataAn = Data Analysis, Statistics, and Probability

† Because Grade 10 was pre-equated, the common items functioned as the equating link

**Table A6: 2008 MCAS Science and Technology/Engineering, Grades 5 and 8  
Common and Equating Item Set Comparison  
Reporting Category Point Distribution**

Reporting Category	Grade			
	5		8	
	Common	Equating	Common	Equating
Earth and Space Science	17	16	14	14
Life Science	15	16	14	14
Physical Sciences	14	14	13	13
Technology/Engineering	8	8	13	13
<b>Total</b>	<b>54</b>	<b>54</b>	<b>54</b>	<b>54</b>

## Appendix A

**Table A7: 2008 MCAS Science and Technology/Engineering, High School Tests  
Common and Equating Item Set Comparison  
Reporting Category Point Distribution**

<b>Biology</b>		
Reporting Category*	Common	Equating†
Bio&Cell	15	15
Genetics	12	12
Ana&Phys	12	12
Ev&Bio	12	12
Ecology	9	9
<b>Total</b>	<b>60</b>	<b>60</b>

\* Bio&Cell = Biochemistry and Cell Biology

Ana&Phys = Anatomy and Physiology

Ev&Bio = Evolution and Biodiversity

† Because Grade 10 was pre-equated, the common items functioned as the equating link

<b>Chemistry</b>		
Reporting Category**	Common	Equating†
PM&T	15	15
AS&P	15	15
B&R	18	18
SE&A	12	12
<b>Total</b>	<b>60</b>	<b>60</b>

\*\* PM&T = Properties of Matter and Thermochemistry

AS&P = Atomic Structure and Periodicity

B&R = Bonding and Reactions

SE&A = Solutions, Equilibrium, and Acid-Base Theory

† Because Grade 10 was pre-equated, the common items functioned as the equating link

<b>Introductory Physics</b>		
Reporting Category***	Common	Equating†
M&F	24	24
H&HT	9	9
W&R	15	15
Electr	12	12
<b>Total</b>	<b>60</b>	<b>60</b>

\*\*\* M&F = Motion and Forces

H&HT = Heat and Heat Transfer

W&R = Waves and Radiation

Electr = Electromagnetism

† Because Grade 10 was pre-equated, the common items functioned as the equating link

<b>Technology/Engineering</b>		
Reporting Category****	Common	Equating†
EngDes	12	12
C&M	12	12
F&ST	18	18
E&CS	18	18
<b>Total</b>	<b>60</b>	<b>60</b>

\*\*\*\* EngDes = Engineering Design

C&M = Construction and Manufacturing

F&ST = Fluid and Thermal Systems

E&CS = Electrical and Communications Systems

† Because Grade 10 was pre-equated, the common items functioned as the equating link

## C. Difficulty and Discrimination

**Table A8: 2008 MCAS English Language Arts  
Common and Equating Item Set Comparison  
Difficulty (p-value or mean points scored) and Discrimination (D)**

Grade	Common Item Type						Equating Item Type					
	MC		OR		WP		MC		OR		WP	
	p-value	D	mean	D	mean	D	p-value	D	mean	D	mean	D
3	0.78	0.42	1.77	0.42	N/A	N/A	0.79	0.43	2.12	0.54	N/A	N/A
4	0.82	0.39	1.97	0.54	14.06	0.56	0.76	0.42	1.93	0.58	N/A	N/A
5	0.78	0.39	2.02	0.51	N/A	N/A	0.75	0.41	2.12	0.55	N/A	N/A
6	0.79	0.38	2.16	0.51	N/A	N/A	0.73	0.42	2.29	0.61	N/A	N/A
7	0.81	0.39	2.19	0.62	14.11	0.63	0.76	0.4	2.21	0.67	N/A	N/A
8	0.79	0.38	2.33	0.60	N/A	N/A	0.76	0.42	2.36	0.66	N/A	N/A
10	0.78	0.35	2.62	0.64	14.05	0.66	0.78†	0.35†	2.62†	0.64†	14.05†	0.66†

† Because Grade 10 was pre-equated, the common items functioned as the equating link

**Table A9: 2008 MCAS Mathematics  
Common and Equating Item Set Comparison  
Difficulty (p-value or mean points scored) and Discrimination (D)**

Grade	Common Item Type						Equating Item Type					
	MC		SA		OR		MC		SA		OR	
	p-value	D	p-value	D	Mean	D	p-value	D	p-value	D	mean	D
3	0.82	0.40	0.73	0.40	1.19	0.48	0.78	0.43	0.71	0.42	1.52	0.52
4	0.80	0.39	0.57	0.43	2.16	0.57	0.69	0.42	0.68	0.42	2.59	0.60
5	0.71	0.45	0.72	0.44	2.25	0.62	0.74	0.44	0.66	0.48	2.18	0.67
6	0.77	0.46	0.71	0.51	2.56	0.67	0.76	0.45	0.73	0.44	2.54	0.66
7	0.69	0.43	0.71	0.50	2.42	0.70	0.69	0.48	0.71	0.49	2.39	0.68
8	0.68	0.45	0.62	0.50	2.27	0.69	0.63	0.44	0.54	0.49	2.22	0.70
10	0.68	0.42	0.71	0.51	2.54	0.74	0.68†	0.42†	0.71†	0.51†	2.54†	0.74†

† Because Grade 10 was pre-equated, the common items functioned as the equating link

**Table A10: 2008 MCAS Science and Technology/Engineering  
Common and Equating Item Set Comparison  
Difficulty (p-value or mean points scored) and Discrimination (D)**

Grade/ Test	Common Item Type				Equating Item Type†			
	MC		OR		MC		OR	
	p-value	D	mean	D	p-value	D	mean	D
5	0.74	0.35	2.22	0.54	0.74	0.36	2.05	0.46
8	0.65	0.35	2.04	0.63	0.66	0.38	2.13	0.64
HSBio	0.63	0.39	1.76	0.70	0.63†	0.39†	1.76†	0.70†
HSCChem	0.53	0.43	1.54	0.76	0.53†	0.43†	1.54†	0.76†
HSPHys	0.58	0.38	2.17	0.67	0.58†	0.38†	2.17†	0.67†
HSTech/Eng	0.65	0.32	2.23	0.51	0.65†	0.32†	2.23†	0.51†

† Because Grade 10 was pre-equated, the common items functioned as the equating link

