

APPENDIX P

CLASSICAL RELIABILITY

**Table P-1. 2017 Legacy MCAS: Subgroup Reliabilities –
ELA**

Grade	Subgroup	Number of Students	Raw Score			Alpha	SEM
			Maximum	Mean	Standard Deviation		
10	All Students	69,365	72	53.48	10.67	0.90	3.32
	Economically Disadvantaged	20,417	72	47.84	12.10	0.90	3.80
	African American	5,980	72	48.94	11.35	0.89	3.69
	Asian	4,444	72	57.07	9.65	0.90	3.00
	Hispanic	11,478	72	46.85	12.91	0.91	3.94
	Multi-race	1,981	72	54.12	10.23	0.90	3.23
	Native American	149	72	51.46	9.84	0.89	3.28
	Pacific Islander/Hawaiian	58	72	52.67	13.58	0.92	3.77
	White	45,275	72	55.39	9.06	0.89	3.06
	Female	34,423	72	55.42	9.86	0.90	3.11
	Male	34,926	72	51.57	11.09	0.90	3.44
	LEP	3,288	72	33.46	12.41	0.85	4.84
	FLEP	2,051	72	47.93	9.27	0.85	3.58
	LEPFLEP	5,287	72	38.95	13.32	0.88	4.57
	Plan 504	4,946	72	53.67	8.90	0.87	3.18
	Special Education	11,143	72	43.30	11.60	0.88	3.94
	Title I	16,834	72	48.47	11.86	0.90	3.72

**Table P-2. 2017 Legacy MCAS: Subgroup Reliabilities –
Mathematics**

Grade	Subgroup	Number of Students	Raw Score			Alpha	SEM
			Maximum	Mean	Standard Deviation		
10	All Students	69,429	60	39.71	12.56	0.92	3.54
	Economically Disadvantaged	20,454	60	32.81	12.76	0.92	3.66
	African American	6,017	60	32.88	12.39	0.91	3.65
	Asian	4,451	60	47.60	11.19	0.92	3.19
	Hispanic	11,531	60	31.76	12.93	0.92	3.68
	Multi-race	1,978	60	40.22	12.95	0.93	3.54
	Native American	151	60	36.89	11.77	0.91	3.58
	Pacific Islander/Hawaiian	59	60	40.95	12.68	0.92	3.65
	White	45,242	60	41.85	11.22	0.91	3.42
	Female	34,384	60	40.05	12.22	0.92	3.51
	Male	35,030	60	39.37	12.87	0.92	3.57
	LEP	3,332	60	22.50	11.18	0.90	3.55
	FLEP	2,058	60	33.45	11.66	0.90	3.65
	LEPFLEP	5,337	60	26.60	12.54	0.91	3.68
	Plan 504	4,941	60	39.62	11.01	0.90	3.49
	Special Education	11,214	60	27.67	11.64	0.90	3.64
	Title I	16,866	60	34.03	12.80	0.92	3.65

**Table P-3. 2017 Legacy MCAS: Subgroup Reliabilities –
Science**

Grade	Subgroup	Number of Students	Raw Score			Alpha	SEM	
			Maximum	Mean	Standard Deviation			
5	All Students	69,125	54	35.21	9.53	0.88	3.29	
	Economically Disadvantaged	9,805	54	28.93	9.77	0.88	3.44	
	African American	23,809	54	30.62	9.66	0.88	3.41	
	Asian	5,936	54	30.03	9.56	0.87	3.42	
	Hispanic	4,589	54	38.53	9.02	0.88	3.12	
	Multi-race	13,639	54	30.24	9.90	0.88	3.42	
	Native American	136	54	32.23	9.85	0.88	3.47	
	Pacific Islander/Hawaiian	42,289	54	37.14	8.51	0.86	3.19	
	White	58	54	34.60	9.42	0.88	3.31	
	Female	2,466	54	35.98	9.69	0.89	3.25	
	Male	35,338	54	34.94	9.69	0.89	3.27	
	LEP	33,783	54	35.49	9.34	0.88	3.29	
	FLEP	28,288	54	31.48	9.71	0.88	3.39	
	LEPFLEP	5,005	54	24.60	9.00	0.86	3.41	
	Plan 504	4,972	54	33.39	8.40	0.84	3.35	
	Special Education	12,878	54	27.83	9.61	0.87	3.42	
	Title I	4,592	54	34.98	8.81	0.86	3.29	
	8	All Students	69,971	54	33.64	10.28	0.90	3.33
		Economically Disadvantaged	5,445	54	22.68	9.57	0.87	3.41
African American		21,251	54	27.81	10.07	0.88	3.43	
Asian		5,809	54	27.20	9.77	0.88	3.42	
Hispanic		4,555	54	37.96	9.62	0.89	3.17	
Multi-race		12,161	54	27.04	10.27	0.89	3.43	
Native American		171	54	30.77	10.59	0.90	3.35	
Pacific Islander/Hawaiian		45,013	54	35.80	9.20	0.88	3.24	
White		53	54	30.91	10.22	0.88	3.48	
Female		2,179	54	34.46	10.30	0.90	3.30	
Male		35,642	54	33.61	10.54	0.90	3.30	
LEP		34,314	54	33.67	10.00	0.89	3.36	
FLEP		20,320	54	28.75	10.28	0.89	3.42	
LEPFLEP		4,006	54	20.31	8.38	0.84	3.35	
Plan 504		1,566	54	29.22	9.55	0.87	3.41	
Special Education		12,160	54	24.79	9.78	0.88	3.40	
Title I		5,006	54	33.96	9.45	0.88	3.30	

**Table P-4. 2017 Legacy MCAS: Subgroup Reliabilities –
High School Biology**

Subgroup	Number of Students	Raw Score			Alpha	SEM
		Maximum	Mean	Standard Deviation		
All Students	52,728	60	40.14	11.30	0.91	3.35
Economically Disadvantaged	15,889	60	33.87	11.77	0.91	3.49
African American	4,402	60	34.26	11.21	0.90	3.49
Asian	3,357	60	45.43	10.47	0.91	3.14
Hispanic	8,897	60	32.91	12.05	0.92	3.51
Multi-race	1,472	60	40.33	11.25	0.91	3.35
Native American	109	60	36.94	10.99	0.90	3.49
Pacific Islander/Hawaiian	45	60	38.71	9.99	0.88	3.48
White	34,373	60	42.29	9.97	0.89	3.23
Female	26,575	60	40.74	10.96	0.91	3.34
Male	26,132	60	39.53	11.60	0.92	3.33
LEP	2,771	60	24.09	10.30	0.89	3.44
FLEP	1,280	60	34.45	10.60	0.89	3.51
LEPFLEP	4,012	60	27.28	11.43	0.91	3.52
Plan 504	3,598	60	40.08	10.34	0.90	3.32
Special Education	8,432	60	30.28	11.19	0.90	3.47
Title I	12,506	60	35.07	11.85	0.91	3.49

**Table P-5. 2017 Legacy MCAS: Subgroup Reliabilities –
High School Chemistry**

Subgroup	Number of Students	Raw Score			Alpha	SEM
		Maximum	Mean	Standard Deviation		
All Students	705	60	38.40	12.00	0.91	3.54
Economically Disadvantaged	217	60	33.29	13.85	0.93	3.66
African American	135	60	36.81	11.02	0.89	3.59
Asian	77	60	42.96	9.89	0.88	3.41
Hispanic	97	60	26.30	13.48	0.93	3.68
Multi-race	37	60	39.24	11.79	0.91	3.53
Native American	1					
Pacific Islander/Hawaiian	0					
White	356	60	41.42	9.80	0.88	3.36
Female	391	60	38.73	11.07	0.90	3.54
Male	313	60	38.07	13.01	0.93	3.50
LEP	60	60	19.28	9.04	0.86	3.39
FLEP	15	60	32.53	10.81	0.88	3.73
LEPFLEP	74	60	21.92	10.83	0.89	3.54
Plan 504	34	60	40.15	9.88	0.88	3.38
Special Education	61	60	27.75	13.68	0.93	3.64
Title I	55	60	22.98	10.72	0.89	3.58

**Table P-6. 2017 Legacy MCAS: Subgroup Reliabilities –
High School Introductory Physics**

Subgroup	Number of Students	Raw Score			Alpha	SEM
		<i>Maximum</i>	<i>Mean</i>	<i>Standard Deviation</i>		
All Students	14,126	60	38.68	12.21	0.92	3.46
Economically Disadvantaged	3,891	60	30.58	12.17	0.91	3.62
African American	1,563	60	30.08	11.67	0.90	3.62
Asian	952	60	46.54	9.75	0.90	3.06
Hispanic	2,358	60	30.51	12.39	0.91	3.63
Multi-race	458	60	40.49	12.35	0.92	3.40
Native American	40	60	37.48	11.23	0.91	3.42
Pacific Islander/Hawaiian	8					
White	8,736	60	41.51	10.47	0.90	3.32
Female	6,821	60	38.42	11.93	0.92	3.45
Male	7,298	60	38.94	12.45	0.92	3.47
LEP	984	60	23.69	11.06	0.90	3.58
FLEP	282	60	33.50	11.71	0.91	3.56
LEPFLEP	1,218	60	25.55	11.91	0.91	3.61
Plan 504	1,046	60	39.67	10.32	0.89	3.41
Special Education	2,368	60	29.36	11.77	0.91	3.61
Title I	3,274	60	29.53	12.06	0.91	3.65

**Table P-7. 2017 Legacy MCAS: Subgroup Reliabilities –
High School Technology/Engineering**

Subgroup	Number of Students	Raw Score			Alpha	SEM
		<i>Maximum</i>	<i>Mean</i>	<i>Standard Deviation</i>		
All Students	2,519	60	35.90	10.83	0.90	3.49
Economically Disadvantaged	1,049	60	32.52	10.99	0.90	3.55
African American	228	60	32.03	10.60	0.89	3.56
Asian	71	60	38.00	9.54	0.87	3.38
Hispanic	497	60	29.75	11.10	0.90	3.55
Multi-race	69	60	34.12	9.70	0.87	3.51
Native American	8					
Pacific Islander/Hawaiian	1					
White	1,645	60	38.27	9.97	0.88	3.44
Female	927	60	33.68	10.66	0.89	3.55
Male	1,592	60	37.20	10.72	0.90	3.44
LEP	142	60	24.26	9.42	0.86	3.52
FLEP	61	60	31.00	10.86	0.89	3.56
LEPFLEP	196	60	25.82	10.05	0.88	3.55
Plan 504	190	60	38.68	10.00	0.89	3.39
Special Education	684	60	29.78	10.72	0.89	3.52
Title I	1,331	60	34.07	10.64	0.89	3.51

Table P-8. 2017 Legacy MCAS: Reliabilities by Reporting Category by Grade – ELA

Grade	Item Reporting Category*	Number of Items	Raw Score			Alpha	SEM
			Maximum	Mean	Standard Deviation		
10	CC	1	8	6.94	1.48		
	CT	1	12	7.03	1.60		
	LA	4	4	3.43	0.88	0.50	0.62
	LT	36	48	36.09	7.87	0.89	2.59

* Reporting category definitions follow table P-15.

Table P-9. 2017 Legacy MCAS: Reliabilities by Reporting Category by Grade – Mathematics

Grade	Item Reporting Category*	Number of Items	Raw Score			Alpha	SEM
			Maximum	Mean	Standard Deviation		
10	AF	12	18	12.47	3.88	0.78	1.80
	GE	11	17	11.17	4.30	0.79	1.99
	NQ	10	13	7.94	3.08	0.67	1.78
	SP	9	12	8.13	2.55	0.66	1.49

* Reporting category definitions follow table P-15.

Table P-10. 2017 Legacy MCAS: Reliabilities by Reporting Category – Science

Grade	Item Reporting Category*	Number of Items	Raw Score			Alpha	SEM
			Maximum	Mean	Standard Deviation		
5	1	13	16	9.77	3.11	0.69	1.74
	2	13	16	10.66	3.04	0.70	1.67
	3	11	14	9.66	2.83	0.62	1.74
	4	5	8	5.12	1.95	0.46	1.43
8	1	11	14	8.07	3.08	0.68	1.75
	2	11	14	8.72	2.98	0.72	1.59
	3	10	13	8.26	3.17	0.69	1.76
	4	10	13	8.59	2.46	0.60	1.56

* Reporting category definitions follow table P-15.

Table P-11. 2017 Legacy MCAS: Reliabilities by Reporting Category – High School Biology

Item Reporting Category*	Number of Items	Raw Score			Alpha	SEM
		Maximum	Mean	Standard Deviation		
AP	6	9	5.58	1.82	0.51	1.27
BC	12	15	9.81	3.19	0.75	1.61
EC	9	12	8.65	2.57	0.68	1.46
EV	9	12	7.95	2.57	0.68	1.44
GE	9	12	8.16	2.78	0.62	1.72

* Reporting category definitions follow table P-15.

Table P-12. 2017 Legacy MCAS: Reliabilities by Reporting Category – High School Chemistry

Item Reporting Category*	Number of Items	Raw Score			Alpha	SEM
		Maximum	Mean	Standard Deviation		
AS	12	15	10.42	3.41	0.75	1.72
BR	15	18	11.66	4.12	0.79	1.87
SO	9	12	7.63	2.65	0.62	1.64
TH	9	15	8.69	3.27	0.68	1.84

* Reporting category definitions follow table P-15.

Table P-13. 2017 Legacy MCAS: Reliabilities by Reporting Category – High School Introductory Physics

Item Reporting Category*	Number of Items	Raw Score			Alpha	SEM
		Maximum	Mean	Standard Deviation		
EM	9	12	8.42	2.87	0.72	1.51
HT	6	9	5.09	2.23	0.61	1.40
MF	18	24	15.98	5.11	0.82	2.20
WV	12	15	9.19	3.27	0.72	1.73

* Reporting category definitions follow table P-15.

Table P-14. 2017 Legacy MCAS: Reliabilities by Reporting Category – High School Technology/Engineering

Item Reporting Category*	Number of Items	Raw Score			Alpha	SEM
		Maximum	Mean	Standard Deviation		
CM	9	12	7.68	2.32	0.57	1.52
ED	9	12	8.00	2.42	0.65	1.43
EL	15	18	10.31	3.94	0.75	1.98
FL	12	18	9.92	3.71	0.72	1.97

* Reporting category definitions follow table P-15.

Reporting Category Definitions

AP	=	Anatomy and Physiology
AS	=	Atomic Structure and Periodicity
BC	=	Biochemistry and Cell Biology
BI	=	Biology
BR	=	Bonding and Reactions
CC	=	Composition/Conventions
CH	=	Chemistry
CM	=	Construction and Manufacturing
CT	=	Composition/Topic Development
EC	=	Ecology
ED	=	Engineering Design
EL	=	Electrical and Communications Systems
EM	=	Electromagnetism
ES	=	Earth and Space Science
EV	=	Evolution and Biodiversity
FL	=	Fluid and Thermal Systems
GE	=	Genetics
GE	=	Geometry
HT	=	Heat and Heat Transfer
LA	=	Language
LS	=	Life Science
LT	=	Reading and Literature
ME	=	Measurement
MF	=	Motion and Forces
NS	=	Number Sense and Operations
PH	=	Introductory Physics
PR	=	Patterns, Relations, and Algebra
PS	=	Physical Sciences
SO	=	Solutions, Equilibrium, and Acid-Base Theory
SP	=	Data Analysis, Statistics, and probability
TE	=	Technology/Engineering
TH	=	Properties of Matter and Thermochemistry
WV	=	Waves and Radiation