

# **APPENDIX O**

## **CLASSICAL RELIABILITY**

**Table O-1. 2018 Legacy MCAS: Subgroup Reliabilities –ELA**

Grade	Subgroup	Number of Students	Raw Score			Alpha	SEM
			<i>Maximum</i>	<i>Mean</i>	<i>Standard Deviation</i>		
10	All Students	69,662	72	52.38	11.00	0.89	3.57
	Economically Disadvantaged	21,060	72	46.83	12.39	0.89	4.02
	African American	6,126	72	47.76	11.33	0.88	3.87
	Asian	4,573	72	56.41	9.78	0.89	3.22
	Hispanic	12,333	72	45.63	13.21	0.90	4.17
	Multi-race	1,997	72	53.50	10.06	0.88	3.44
	Native American	137	72	49.97	10.39	0.88	3.53
	Pacific Islander/Hawaiian	60	72	50.43	10.92	0.88	3.79
	White	44,436	72	54.44	9.33	0.87	3.30
	Female	34,498	72	54.63	9.93	0.89	3.32
	Male	35,132	72	50.17	11.54	0.90	3.71
	LEP	4,205	72	33.26	12.84	0.86	4.87
	FLEP	2,893	72	49.15	9.30	0.85	3.66
	LEPFLEP	7,098	72	39.74	13.92	0.89	4.61
	Plan 504	5,025	72	52.76	9.29	0.86	3.47
	Special Education	11,164	72	42.52	11.77	0.87	4.20
	Title I	18,592	72	47.88	11.82	0.89	3.86

**Table O-2. 2018 Legacy MCAS: Subgroup Reliabilities –Mathematics**

Grade	Subgroup	Number of Students	Raw Score			Alpha	SEM
			<i>Maximum</i>	<i>Mean</i>	<i>Standard Deviation</i>		
10	All Students	69,306	60	40.01	13.89	0.93	3.69
	Economically Disadvantaged	20,810	60	32.59	14.01	0.93	3.80
	African American	6,095	60	32.36	13.24	0.92	3.78
	Asian	4,552	60	48.90	11.59	0.93	3.12
	Hispanic	12,192	60	31.55	14.17	0.93	3.79
	Multi-race	1,979	60	40.92	13.73	0.93	3.67
	Native American	138	60	35.41	13.00	0.91	3.82
	Pacific Islander/Hawaiian	60	60	38.33	13.60	0.92	3.78
	White	44,290	60	42.45	12.56	0.92	3.56
	Female	34,317	60	40.52	13.45	0.93	3.65
	Male	34,957	60	39.51	14.30	0.93	3.72
	LEP	4,137	60	22.48	11.90	0.91	3.52
	FLEP	2,872	60	35.43	13.21	0.92	3.76
	LEPFLEP	7,009	60	27.79	13.99	0.93	3.73
	Plan 504	4,984	60	40.03	12.36	0.91	3.66
	Special Education	11,058	60	26.93	12.65	0.91	3.69
	Title I	18,424	60	34.42	13.98	0.93	3.78

**Table O-3. 2018 Legacy MCAS: Subgroup Reliabilities –High School Biology**

Subgroup	Number of Students	Raw Score			Alpha	SEM
		<i>Maximum</i>	<i>Mean</i>	<i>Standard Deviation</i>		
All Students	53,661	60	38.11	10.78	0.90	3.40
Economically Disadvantaged	16,925	60	32.45	10.98	0.90	3.54
African American	4,584	60	32.91	10.53	0.89	3.52
Asian	3,483	60	43.93	9.76	0.90	3.13
Hispanic	10,182	60	31.32	11.19	0.90	3.56
Multi-race	1,592	60	39.04	10.57	0.90	3.39
Native American	121	60	35.42	10.47	0.89	3.50
Pacific Islander/Hawaiian	36	60	36.33	12.15	0.92	3.51
White	33,586	60	40.29	9.50	0.88	3.28
Female	26,705	60	38.75	10.24	0.89	3.36
Male	26,899	60	37.51	11.25	0.91	3.43
LEP	3,311	60	23.57	9.71	0.87	3.51
FLEP	2,616	60	35.14	9.90	0.88	3.48
LEPFLEP	5,927	60	28.68	11.36	0.90	3.58
Plan 504	3,818	60	38.20	9.78	0.88	3.37
Special Education	8,518	60	28.98	10.35	0.88	3.53
Title I	15,117	60	33.62	11.02	0.90	3.53

**Table O-4. 2018 Legacy MCAS: Subgroup Reliabilities –High School Chemistry**

Subgroup	Number of Students	Raw Score			Alpha	SEM
		<i>Maximum</i>	<i>Mean</i>	<i>Standard Deviation</i>		
All Students	407	60	38.70	12.42	0.91	3.64
Economically Disadvantaged	67	60	32.63	13.05	0.92	3.64
African American	38	60	32.13	11.46	0.90	3.57
Asian	55	60	43.62	11.79	0.91	3.46
Hispanic	36	60	30.39	11.90	0.90	3.85
Multi-race	14	60	43.79	13.85	0.94	3.46
Native American	0					
Pacific Islander/Hawaiian	0					
White	263	60	39.57	11.76	0.91	3.61
Female	197	60	38.78	11.47	0.90	3.61
Male	208	60	38.55	13.30	0.92	3.67
LEP	16	60	24.94	8.01	0.80	3.61
FLEP	9					
LEPFLEP	25	60	30.16	11.92	0.90	3.72
Plan 504	30	60	37.87	13.89	0.93	3.76
Special Education	23	60	28.43	12.72	0.92	3.60
Title I	42	60	36.67	13.87	0.92	3.82

**Table O-5. 2018 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	14,446	60	38.76	11.98	0.91	3.54
Economically Disadvantaged	4,036	60	31.02	11.69	0.90	3.74
African American	1,520	60	30.60	11.04	0.89	3.73
Asian	1,117	60	46.48	9.81	0.90	3.04
Hispanic	2,396	60	31.14	11.88	0.90	3.74
Multi-race	508	60	40.99	12.10	0.92	3.41
Native American	28	60	32.82	13.98	0.92	3.85
Pacific Islander/Hawaiian	11	60	37.00	11.71	0.90	3.76
White	8,857	60	41.16	10.61	0.90	3.39
Female	7,040	60	38.89	11.56	0.91	3.55
Male	7,397	60	38.65	12.36	0.92	3.52
LEP	916	60	24.89	10.85	0.89	3.66
FLEP	724	60	36.10	11.29	0.90	3.62
LEPFLEP	1,640	60	29.84	12.37	0.91	3.74
Plan 504	979	60	38.62	10.86	0.90	3.49
Special Education	2,436	60	29.17	11.28	0.89	3.69
Title I	3,388	60	31.09	11.67	0.90	3.74

**Table O-6. 2018 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	2,275	60	35.67	10.90	0.89	3.60
Economically Disadvantaged	949	60	32.11	10.98	0.89	3.64
African American	198	60	30.61	10.63	0.88	3.69
Asian	38	60	41.68	10.61	0.90	3.37
Hispanic	431	60	30.20	10.71	0.88	3.64
Multi-race	65	60	35.82	11.85	0.91	3.55
Native American	8					
Pacific Islander/Hawaiian	3					
White	1,530	60	37.72	10.12	0.88	3.53
Female	870	60	34.37	10.77	0.89	3.61
Male	1,404	60	36.49	10.89	0.89	3.58
LEP	114	60	24.39	10.07	0.87	3.57
FLEP	111	60	31.32	9.99	0.87	3.62
LEPFLEP	225	60	27.81	10.59	0.88	3.62
Plan 504	176	60	38.44	9.99	0.88	3.53
Special Education	646	60	29.18	10.88	0.89	3.62
Title I	1,307	60	34.51	10.44	0.88	3.61

**Table O-7. 2018 Legacy MCAS: Subgroup Reliabilities –Science Grade 5**

Subgroup	Number of Students	Raw Score			Alpha	SEM
		<i>Maximum</i>	<i>Mean</i>	<i>Standard Deviation</i>		
All Students	71,003	54	34.67	10.03	0.89	3.38
Economically Disadvantaged	25,490	54	30.02	9.93	0.88	3.47
African American	6,280	54	29.14	9.94	0.88	3.48
Asian	4,934	54	38.64	9.32	0.88	3.25
Hispanic	14,556	54	29.59	10.10	0.88	3.48
Multi-race	2,717	54	35.48	10.31	0.89	3.37
Native American	146	54	31.51	9.83	0.88	3.45
Pacific Islander/Hawaiian	65	54	29.86	11.28	0.90	3.51
White	42,297	54	36.74	9.06	0.87	3.31
Female	34,875	54	34.90	9.90	0.88	3.38
Male	36,126	54	34.44	10.15	0.89	3.38
LEP	5,658	54	23.84	9.04	0.86	3.43
FLEP	6,276	54	33.82	8.90	0.85	3.41
LEPFLEP	11,934	54	29.09	10.26	0.88	3.48
Plan 504	4,625	54	34.61	9.32	0.87	3.37
Special Education	13,460	54	26.87	10.00	0.88	3.46
Title I	30,527	54	31.12	10.07	0.88	3.46

**Table O-8. 2018 Legacy MCAS: Subgroup Reliabilities –Science Grade 8**

Subgroup	Number of Students	Raw Score			Alpha	SEM
		<i>Maximum</i>	<i>Mean</i>	<i>Standard Deviation</i>		
All Students	70,648	54	32.42	10.47	0.90	3.38
Economically Disadvantaged	22,423	54	26.74	9.86	0.88	3.36
African American	6,104	54	26.11	9.47	0.87	3.36
Asian	4,698	54	37.35	9.84	0.89	3.27
Hispanic	12,952	54	26.02	9.94	0.89	3.35
Multi-race	2,365	54	33.36	10.78	0.90	3.37
Native American	163	54	30.56	10.33	0.90	3.35
Pacific Islander/Hawaiian	68	54	33.81	10.29	0.89	3.34
White	44,285	54	34.60	9.58	0.88	3.33
Female	34,630	54	32.63	10.16	0.89	3.39
Male	36,008	54	32.22	10.76	0.90	3.35
LEP	4,332	54	19.42	7.55	0.82	3.18
FLEP	4,326	54	28.90	9.08	0.86	3.37
LEPFLEP	8,658	54	24.16	9.60	0.88	3.32
Plan 504	5,080	54	32.44	9.59	0.88	3.35
Special Education	12,542	54	23.81	9.44	0.88	3.31
Title I	21,586	54	27.80	10.12	0.89	3.37

**Table O-9. 2018 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	6.72	1.68		
	CT	1	12	6.85	1.85		
	LA	4	4	2.68	1.10	0.38	0.86
	LT	36	48	36.13	7.77	0.89	2.60

\* Reporting category definitions follow table P-16.

**Table O-10. 2018 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	11.75	4.58	0.81	1.98
	GE	12	18	12.79	4.58	0.78	2.14
	NQ	9	12	7.80	2.87	0.71	1.55
	SP	9	12	7.67	3.00	0.68	1.69

\* Reporting category definitions follow table P-16.

**Table O-11. 2018 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	6.16	1.71	0.51	1.19
BC	12	15	9.48	3.21	0.70	1.75
EC	10	13	8.11	2.57	0.69	1.42
EV	8	11	7.04	2.23	0.61	1.38
GE	9	12	7.33	2.83	0.59	1.80

\* Reporting category definitions follow table P-16.

**Table O-12. 2018 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	10.13	3.18	0.70	1.73
BR	12	18	11.35	4.31	0.75	2.14
SO	9	12	7.09	2.91	0.71	1.56
TH	12	15	10.13	3.37	0.72	1.80

\* Reporting category definitions follow table P-16.

**Table O-13. 2018 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	8.08	2.77	0.64	1.67
HT	6	9	6.07	2.11	0.58	1.36
MF	18	24	15.28	5.16	0.80	2.29
WV	12	15	9.34	3.19	0.73	1.67

\* Reporting category definitions follow table P-16.

**Table O-14. 2018 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	8.05	2.31	0.61	1.45
ED	9	12	7.90	2.63	0.55	1.76
EL	12	18	8.61	3.72	0.73	1.95
FL	15	18	11.11	3.85	0.73	1.99

\* Reporting category definitions follow table P-16.

**Table O-15. 2018 Legacy MCAS: Reliabilities by Reporting Category –Science Grade 5**

Item Reporting Category*	Number of Items	Raw Score			Alpha	SEM
		Maximum	Mean	Standard Deviation		
1	13	16	10.12	3.28	0.71	1.75
2	13	16	10.55	3.4	0.71	1.83
3	10	13	7.94	2.8	0.61	1.75
4	6	9	6.06	2.03	0.51	1.42

\* Reporting category definitions follow table P-16.

**Table O-16. 2018 Legacy MCAS: Reliabilities by Reporting Category –Science Grade 8**

Item Reporting Category*	Number of Items	Raw Score			Alpha	SEM
		Maximum	Mean	Standard Deviation		
1	10	13	6.85	3.18	0.67	1.81
2	11	14	8.51	3.08	0.71	1.67
3	11	14	8.1	2.9	0.68	1.65
4	10	13	8.95	2.78	0.66	1.63

\* Reporting category definitions follow table P-16.

## 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