

## Student Performance

### *Score Interpretation*

To help provide appropriate interpretation of the 2009 MSA Science operational test scores, two types of scores were created: scale scores and performance levels and descriptions.

### *Scale Scores*

As explained in the proceeding section, the 2009 MSA Science tests yield scale scores that range between 240 and 650. As a result of calibration, equating, and scaling the scale scores from the 2 base forms are comparable within the same grade, but not across grade levels. The only inferences that can be appropriately drawn from scale scores are that higher scale scores represent higher performance on the MSA Science test. Thus, performance levels and descriptions can give a specific interpretation other than a simple interpretation because they were developed to bring meaning to the scale scores.

### *Performance Levels and Descriptions*

Performance levels and descriptions provide specific information about students' performance levels and help interpret the 2009 MSA Science scale scores. They describe what students at a particular level generally know and are able to do and can be applicable to all students within a grade level.

Performance standards for the MSA Science tests were established in 2007. Details of the standard-setting process and outcomes are provided in MSA Science standard-setting technical report (Pearson, 2007). The Maryland State Board of Education reviewed the performance standards recommended by the standard-setting committee and made a modification in the recommendation. The performance standards approved by the State Board are listed in Table 9. Students whose scale scores are lower than the Proficient cut score are classified as "Basic." The highest performance group whose scale score is equal or higher than Advanced cut score belongs to the "Advanced" group. The middle group is called "Proficient"

Table 9. Scale score cut scores for grades 5 and 8 MSA Science.

Grade	Proficient Cut score	Advanced Cut score
5	391	467
8	387	478

Tables 10 reports percentages of grade 5 students in three performance groups and the descriptive statistics for the selected subgroups (gender and ethnicity). The analysis was conducted for all students in grades 5 as well as by administration mode.

Table 10. Grade 5 Performance Level Percentages and Summary Statistics

	Overall						Online Administration						Paper Administration					
	Performance Levels			Mean	SD	N	Performance Levels			Mean	SD	N	Performance Levels			Mean	SD	N
	B	P	A				B	P	A				B	P	A			
<b>Subgroup</b>																		
<i>All Students</i>																		
All	36	56	8	405	45.7	60592	33	58	8	408	44.0	38946	42	50	8	400	48.2	21646
<b>Gender</b>																		
Female	37	56	7	404	44.3	29662	34	59	7	407	42.9	19146	42	50	7	399	46.4	10516
Male	35	55	9	406	47.0	30914	32	58	9	409	45.0	19799	41	50	9	400	49.7	11115
<b>Ethnicity</b>																		
Native American	30	64	5	409	38.9	227	32	63	4	409	37.4	158	26	67	7	409	42.5	69
Asian	19	64	18	426	44.7	3683	18	68	15	425	42.5	2170	20	59	22	428	47.7	1513
Black	55	43	2	384	41.4	22999	54	45	2	386	40.0	12543	58	41	2	381	42.9	10456
White	20	67	13	423	40.8	28096	21	67	12	422	40.1	21334	18	65	17	427	42.6	6762
Hispanic	51	46	3	388	42.5	5571	50	47	3	389	43.1	2740	52	46	2	387	41.9	2831

Note: Performance Levels, B=Basic, P=Proficient, A=Advanced

Tables 11 reports percentages of grade 8 students in three performance groups and the descriptive statistics for the selected subgroups (gender and ethnicity). The analysis was conducted for all students in grades 5 as well as by administration mode.

Table 11. Grade 8 Performance Level Percentages and Summary Statistics

	Overall						Online Administration						Paper Administration					
	Performance Levels			Mean	SD	N	Performance Levels			Mean	SD	N	Performance Levels			Mean	SD	N
	B	P	A				B	P	A				B	P	A			
<b>Subgroup</b>																		
<i>All Students</i>																		
All	35	60	5	403	49.8	62767	33	62	5	405	47.8	44994	38	56	5	398	54.1	17773
<b>Gender</b>																		
Female	34	61	4	402	46.3	30559	33	63	4	403	44.4	22036	38	58	5	399	50.7	8523
Male	35	59	6	403	52.8	32185	33	61	6	406	50.8	22958	39	55	6	398	57.0	9227
<b>Ethnicity</b>																		
Native American	38	59	3	397	49.6	240	40	56	4	398	47.2	182	33	67	<1	395	56.8	58
Asian	14	72	14	431	45.7	3564	15	73	13	430	45.6	2148	14	71	15	432	45.9	1416
Black	56	44	1	377	45.8	23751	53	46	1	381	43.7	16615	62	37	<1	368	49.2	7138
White	18	74	8	423	41.9	29742	18	75	8	423	41.3	22583	17	74	9	425	43.6	7159
Hispanic	50	49	1	383	47.4	5445	51	47	2	382	47.8	3466	48	51	1	385	46.7	1979

Note: Performance Levels, B=Basic, P=Proficient, A=Advanced