

# Massachusetts Curriculum Matrix Summary

## Massachusetts Comprehensive Assessment System

The Massachusetts Comprehensive Assessment System (MCAS) is designed to measure the performance of all public school students in Massachusetts based on the Massachusetts Curriculum Framework learning standards and report on the performance of individual students, schools, and districts.

As required by the *Education Reform Law*, students must pass the Grade 10 tests in English language arts (ELA) and Mathematics as one condition of eligibility for a high school diploma (in addition to fulfilling local requirements).

## English Language Arts

The Massachusetts English Language Arts Curriculum emphasizes reading and writing skills across all grade levels as organized in four strands: Language, Reading and Literature, Composition, and Media. The strands are separated into general standards and learning standards.

### Testing Priority Designation

Information necessary to make priority designations relative to assessments was obtained from the Massachusetts Department of Education Web site. Test blueprints and released test items can be accessed at this site. Each blueprint reveals the level of representation given on the test to each strand, whereas the *Release of Spring 2008 MCAS Test Items* reveals which learning standards were tested. The number of test items per strand at each grade level grade level was averaged. Standard deviations (STD) were calculated for each grade level and subtracted from the mean. This number established the cut-off point between Medium (M) priority designations and High (H) priority designations. Learning standards that were not tested were assigned a Low (L) priority designation. The results can be found in Table 1 below.

**Table 1. English Language Arts Priority Designation Data.**

Grade	Mean	STD	Mean – STD	Designations		
				L = Low	M = Medium	H = High
<b>3</b>	24.00	13.88	10.12	0	1-10	>10
<b>4</b>	24.00	14.53	9.65	0	1-10	>10
<b>5</b>	26.00	16.33	9.67	0	1-10	>10
<b>6</b>	26.00	16.33	9.67	0	1-10	>10
<b>7</b>	28.67	10.61	18.05	0	1-18	>18
<b>8</b>	26.00	16.33	9.67	0	1-10	>10
<b>9-10</b>	24.00	14.35	9.65	0	1-10	>10

English language arts summary data are presented in Table 2 below.

**Table 2. English Language Arts MCAS Summary Data.**

Grade English Language Arts	Strands	Learning Standards	MCAS			NESS*		
			H	M	L	H 1-19	M 20-38	L 39-50
3	2	40	22	13	5	25	10	5
4	2	69	23	12	34	47	15	7
5	2	29	18	3	8	14	10	5
6	2	52	16	3	33	30	14	8
7	2	31	28	0	3	13	13	5
8	2	59	21	11	27	33	19	7
9-10	2	46	10	5	31	29	10	7
<b>Totals</b>	14	326	138	47	141	191	91	44

### Mathematics

The Massachusetts Mathematics Curriculum is organized into following strands of mathematical content: Number Sense and Operations; Patterns, Relations, and Algebra; Geometry; Measurement; and Data Analysis, Statistics, and Probability. Each strand is organized into general standards and learning standards.

#### Testing Priority Designation

Information necessary to make priority designations relative to assessments was obtained from the Massachusetts State Department of Education Web site. Test blueprints and released test items can be accessed at this site. Each blueprint reveals the level of representation given on the test to each strand, whereas the *Release of Spring 2008 MCAS Test Items* reveals which learning standards were tested. The number of test items per strand at each grade level was averaged. Standard deviations (STD) were calculated for each grade level and subtracted from the mean. This number established the cut-off point between Medium (M) priority designations and High (H) priority designations. Learning standards that were not tested were assigned a Low (L) priority designation. The results can be found in Table 3 below.

**Table 3. Mathematics Priority Designation Data.**

Grade	Mean	STD	Mean – STD	Designations		
				L = Low	M = Medium	H = High
3	8.00	3.00	5.00	0	1-5	>5
4	10.80	3.67	7.13	0	1-7	>7
5	10.80	4.06	6.70	0	1-7	>7
6	10.80	4.06	6.70	0	1-7	>7
7	10.80	3.08	7.70	0	1-8	>8
8	10.80	3.08	7.70	0	1-8	>8
10	12.00	3.00	9.00	0	1-9	>8

Mathematics summary data are presented in Table 4 below.

**Table 4. Mathematics MCAS Summary Data.**

Grade	Strands	Learning Standards	MCAS			NESS*		
			H	M	L	H 1-16	M 17-42	L 43-70
<b>Grade 3</b>	5	33	19	8	6	18	15	0
<b>Grade 4</b>	5	44	26	7	11	27	16	1
<b>Grade 5</b>	5	35	22	8	5	20	15	0
<b>Grade 6</b>	5	43	24	8	11	25	17	1
<b>Grade 7</b>	5	28	15	6	7	19	8	1
<b>Grade 8</b>	5	39	21	7	11	26	10	3
<b>Grade 10</b>	5	32	14	8	10	18	13	1
<b>Totals</b>	35	254	141	52	61	153	94	7

## Science

The Massachusetts Science and Technology Curriculum content is organized into the following strands: Earth and Space Science, Life Science (Biology), Physical Sciences (Chemistry and Physics), and Technology/Engineering. Each strand is organized into general standards and learning standards.

### Testing Priority Designation

Information necessary to make priority designations relative to assessments was obtained from the Massachusetts State Department of Education Web Site. Test blueprints and released test items can be accessed at this site. Each blueprint reveals the level of representation given on the test to each strand, whereas the *Release of Spring 2008 MCAS Test Items* reveals which learning standards were tested. The number of test items per strand at each grade level was averaged. Standard deviations (STD) were calculated for each grade level and subtracted from the mean. This number established the cut-off point between Medium (M) priority designations and High (H) priority designations. Learning standards that were not tested were assigned a Low (L) priority designation. The results can be found in Table 5 below.

**Table 5. Science Priority Designation Data.**

Grade/Subject	Mean	STD	Mean – STD	Designations		
				L = Low	M = Medium	H = High
<b>3-5</b>	13.80	2.92	10.45	0	1-11	>11
<b>6-8</b>	13.50	0.00	13.50	0	1-13	>13
<b>Introductory Physics</b>	15.00	5.02	9.98	0	1-10	>10
<b>Technology/Engineering</b>	15.00	2.68	12.31	0	1-12	>12
<b>Biology</b>	11.25	1.76	9.50	0	1-10	>10
<b>Chemistry</b>	15.00	1.90	13.10	0	1-13	>13

Science summary data are presented in Table 6 below.

**Table 6. Science MCAS Summary Data.**

<b>Grade/Subject</b>	<b>Strands</b>	<b>Learning Standards</b>	<b>MCAS</b>			<b>NESS*</b>		
<b>Science</b>			<b>H</b>	<b>M</b>	<b>L</b>	<b>H 1-32</b>	<b>M 33-50</b>	<b>L 51-85</b>
<b>3-5</b>	4	45	29	4	12	24	9	12
<b>6-8</b>	4	73	36	0	37	33	18	22
<b>Biology</b>	6	32	21	5	6	26	2	4
<b>Chemistry</b>	8	41	28	6	7	6	5	30
<b>Introductory Physics</b>	6	31	23	3	2	1	15	9
<b>Technology/Engineering</b>	7	33	17	12	4	11	12	10
<b>Totals</b>	35	255	154	30	68	101	61	87

**Totals for MCAS Tested English Language Arts, Mathematics, and Science**

Table 7 below presents the number of learning standards compared to the number of learning standards tested. Using this data, the percentage of learning standards tested was calculated.

**Table 7. Total Percentage for all MCAS Grade Levels in English Language Arts, Mathematics, and Science & Technology.**

	<b>Learning Standards</b>	<b>Learning Standards Tested</b>	<b>% Learning Standards Tested</b>
<b>English LA</b>	326	185	57
<b>Mathematics</b>	254	193	76
<b>Science</b>	255	184	72
<b>TOTAL</b>	835	562	67

**References**

**Massachusetts State Office of Education**

<http://www.doe.mass.edu/>

**Massachusetts Curriculum Frameworks**

<http://www.doe.mass.edu/frameworks/current.html>

**Massachusetts Comprehensive Assessment System**

<http://www.doe.mass.edu/mcas/>

**Test Design and Development:** <http://www.doe.mass.edu/mcas/tdd/>

**Spring 2008 MCAS Released Test Items:** <http://www.doe.mass.edu/mcas/student/2008/>

**\*NESS (National Essential Skills Study)** in the preceding subject summary charts refers to the *International Center for Leadership in Education's* 2007-2008 national survey, a forced-ranking by approximately 13,000 adults of the proficiencies deemed most important for high school graduates in each of English Language Arts, Math, and Science.

- *English Language Arts* proficiencies ranked 1-19 were assigned a High (H) rating; items ranked 20-38 were assigned a Medium (M) rating; and items ranked 39-50 were assigned a Low (L) rating.
- *Math* proficiencies ranked 1-16 were assigned a High (H) rating; items ranked 17-42 were assigned a Medium (M) rating; and items ranked 43-70 were assigned a Low (L) rating.
- *Science* proficiencies ranked 1-32 were assigned a High (H) rating; items marked 33-50 were assigned a Medium (M) rating; and items ranked 51-85 were assigned a Low (L) rating.

Where English Language Arts, Math, and Science proficiencies overlapped across indicators in other subjects (for example an English Language Arts proficiency within a Science indicator), the rating of H, M, or L was designated to the proficiency in the subject of focus. A complete description of the *National Essential Skills Study* is provided elsewhere in this resource kit.

