



MASSACHUSETTS DEPARTMENT OF
ELEMENTARY AND SECONDARY
EDUCATION

Spring 2013 MCAS Multiple-Choice Results Interpretive Guide

June 2013

Massachusetts Department of Elementary and Secondary Education
75 Pleasant Street, Malden, MA 02148-4906
Phone 781-338-3000 TTY: N.E.T. Relay 800-439-2370
www.doe.mass.edu



This document was prepared by the
Massachusetts Department of Elementary and Secondary Education
Mitchell D. Chester, Ed.D.
Commissioner

The Massachusetts Department of Elementary and Secondary Education, an affirmative action employer, is committed to ensuring that all of its programs and facilities are accessible to all members of the public. We do not discriminate on the basis of age, color, disability, gender identify, national origin, race, religion, sex or sexual orientation.

Inquiries regarding the Department's compliance with Title IX and other civil rights laws may be directed to the Human Resources Director, 75 Pleasant St., Malden, MA 02148-4906. Phone: 781-338-6105.

© 2013 Massachusetts Department of Elementary and Secondary Education
*Permission is hereby granted to copy any or all parts of this document for non-commercial educational purposes.
Please credit the "Massachusetts Department of Elementary and Secondary Education."*

This document printed on recycled paper

Massachusetts Department of Elementary and Secondary Education
75 Pleasant Street, Malden, MA 02148-4906
Phone 781-338-3000 TTY: N.E.T. Relay 800-439-2370
www.doe.mass.edu



Each year, the Department of Elementary and Secondary Education provides school and district personnel with an early look at full English Language Arts (ELA) results, multiple-choice results for the MCAS Mathematics tests, and multiple-choice results for grades 5 and 8 Science and Technology/Engineering (STE) tests. The purpose of providing these preliminary results is to give instructional staff immediate feedback on student, school, and district performance for educational and curriculum planning and review purposes before the end of the school year and over the summer months.

What Data Are Available?

On June 18, student rosters and student-level data files were posted to school and district dropboxes in DropBox Central in the Department’s Security Portal at gateway.edu.state.ma.us. Two data files, one in Excel format and the other in .csv format, were provided. The records in those data files contain, in addition to full preliminary English Language Arts (ELA) results, multiple-choice results for each student in grades 3–8 and 10 Mathematics and grades 5 and 8 STE.

The Excel files contain the student name, SASID, date of birth, and Mathematics and STE multiple-choice results and raw scores for each student. The data files in .csv format also contain the demographic variables included in all student-level MCAS data files and can be loaded into virtually any data analysis software package, including Excel, for analysis by users capable of manipulating data files. The *MCAS 2013 File Layout*, posted in school and district dropboxes, contains a description of all variables in the data files.

On June 21, twelve different reports will be available through Edwin Analytics. These can be used to conduct curriculum and item analyses at the district, school, and student level. Item analysis reports provide the percent correct on individual items and groups of items, within content area standards, at the school, district, and state levels. Reports for curriculum framework standards analysis at the school and district levels will also be available.

The 2013 released item documents are posted on the Department’s website at www.doe.mass.edu/mcas/testitems.html. As in previous years, approximately half of the test items administered in grades 3–8 have been released, while all high school test items have been released.

Released items can be used, in conjunction with this guide, to identify trends in how students responded to individual questions and to questions in content area strands and topics. Released items can also be used to identify high-percentage distracter questions.

How Should These Results be Used? What is Not Allowed?

All data released prior to the official release of school and district results in mid-September are embargoed, which means the data cannot be released to the public or discussed in public meetings. These data are subject to change based on discrepancies identified by schools, districts, and Department staff. In addition, some data will change based on the June SIMS submission your district is providing to the Department

in July. These data files do not include students who were not tested. Students not tested will be added based on the June SIMS.

Preliminary MCAS data, including the Mathematics and STE multiple-choice results, can and should be used for educational planning purposes. Whenever preliminary results are printed for planning purposes, they should be clearly dated and labeled “preliminary,” with the understanding that some results may change with the official release in September.

Results should be shared with instructional leaders, curriculum specialists, and teachers as they plan for summer programs to reflect on the past year’s efforts and to prepare for September and the incoming cohort of students.

Using the Files

Please keep in mind the following when using the data files:

- These are preliminary data and are subject to change; users should *not* draw any firm conclusions about student performance in Mathematics and STE since only multiple-choice results are included.
- Reports can be sorted by different fields to present different views of the data.
 - Sorting by ***district score*** arranges items from most difficult (i.e., lowest percentage of correct answers) to least difficult (i.e., highest percentage of correct answers). This view helps quickly identify the lowest and highest achievement areas in the district for further analysis and inquiry.
 - Sorting by ***state score*** arranges items from most to least difficult, based on statewide results. This view provides an overall picture of MCAS ***test item difficulty***. ***Item difficulty*** allows you to see how well your students, school, and district performed in comparison to state students and can help prioritize resources for areas of critical need. For example, instructional leaders may want to direct resources according to how well students (or groups of students) performed on the ***least difficult items*** compared to the ***most difficult items***.
 - Sorting by curriculum framework ***standard*** groups items for curriculum framework review.

Users may review the Excel or .csv files posted on June 18, or wait until reports are available in Edwin Analytics on June 21. The data files contain one row of test information for each student, listed alphabetically for each grade. The table below shows the score codes for multiple-choice items.

Question Type	Score Codes								
Multiple-choice	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">+</td> <td>Correct answer (1 point earned)</td> </tr> <tr> <td style="text-align: center;">A, B, C, or D</td> <td>Incorrect answer on a released question (0 points earned)</td> </tr> <tr> <td style="text-align: center;">–</td> <td>Incorrect answer on an unreleased question (0 points earned)</td> </tr> <tr> <td style="text-align: center;">*</td> <td>More than one answer (0 points earned)</td> </tr> </table>	+	Correct answer (1 point earned)	A, B, C, or D	Incorrect answer on a released question (0 points earned)	–	Incorrect answer on an unreleased question (0 points earned)	*	More than one answer (0 points earned)
+	Correct answer (1 point earned)								
A, B, C, or D	Incorrect answer on a released question (0 points earned)								
–	Incorrect answer on an unreleased question (0 points earned)								
*	More than one answer (0 points earned)								

Blank cells indicate that the student did not respond to the question (short-answer and open-response items are also blank for the preliminary release). A blank row indicates that the student did not take the standard MCAS test in that subject (e.g., the student may have participated in the MCAS Alternate Assessment). The total raw score points columns (mrawsc and srawsc) contain the total number of points the student earned on the multiple-choice portion of the test; the multiple-choice raw score is equal to the number of “+” symbols in the row.

Item Analysis

Reports showing the percentage of students answering each item correctly are provided for school, district, and state analysis in Edwin Analytics beginning on June 21. The reports default to all students and provide a filter for eight student subgroups for further analysis. To access the reports, logon to Edwin Analytics in the Department's Security Portal at gateway.edu.state.ma.us.

Analysis of Results by Standards

Edwin Analytics report CU306, **MCAS District Results by Standards**, within the district tab, allows users to identify areas of strength and weakness by question type and by content area strand/topic or domain/cluster at the district level. (Note that CU406, School Results by Standards, provides similar data at the school level.) The report provides the percent correct data for district and state students and calculates the difference in the *District/State Diff* column.

The sample report on the next page shows that the district's grade 8 STE students performed as well on multiple-choice items as state students (62% correct); however, in the *Life Sciences* strand, on average, 54% of district students provided the correct answer, compared to 60% of state students. Gaps at the topic level within the *Life Sciences* strand, such as the 13% gap in *Evolution and Biodiversity*, suggest a need for further analysis and inquiry to identify potential cause(s). *Please note that the number of questions associated with a topic will determine the degree of impact a topic area has on overall results.*

In using this report to guide such inquiry, school and district staff should review student performance on easier items (those with higher percent correct) as well as on more difficult items (those with lower percent correct), and then note the size of the gap in the *District/State Diff* column to prioritize efforts and next steps. *(Please note that this sample report includes constructed-response results that will not be available for 2013 until the release of full preliminary results in August.)*

Focusing on performance gaps associated with less-difficult groups of questions can help reveal whether knowledge most students are expected to possess has been demonstrated; focusing on more difficult groups of questions can help reveal to what extent students have mastered or not yet mastered more challenging parts of the curriculum.

Sample District Results by Standards Report (Grade 8 STE)

	Possible Points	District % Correct	State % Correct	District/State Diff
Science and Technology/Engineering				
All items	54	62%	62%	0
Question Type				
Multiple Choice	38	72%	70%	2
Open Response	16	41%	44%	-3
Strand / Topic				
Earth and Space Science (preK-8)	13	65%	61%	4
Earth's History	3	76%	70%	6
Earth's Structure	1	55%	53%	2
Heat Transfer in the Earth System	2	76%	76%	0
Mapping the Earth	4	40%	38%	2
The Earth in the Solar System	3	82%	75%	7
Life Science (preK-8)	13	54%	60%	-6
Changes in Ecosystems Over Time	1	40%	47%	-7
Classification of Organisms	1	87%	76%	11
Energy and Living Things	2	68%	68%	-1
Evolution and Biodiversity	2	54%	66%	-13
Living Things and Their Environment	1	81%	73%	8
Reproduction and Heredity	4	22%	43%	-21
Structure and Function of Cells	1	83%	73%	10
Systems in Living Things	1	79%	67%	12
Physical Sciences (preK-8)	14	60%	60%	1
Elements, Compounds, and Mixtures	8	58%	60%	-1
Forms of Energy	1	77%	66%	11
Heat Energy	2	60%	55%	6
Properties of Matter	3	60%	62%	-2
Technology/Engineering (preK-8)	14	70%	66%	4
Communication Technologies	2	84%	79%	5
Construction Technologies	1	50%	52%	-2
Engineering Design	4	82%	77%	5
Manufacturing Technologies	1	92%	86%	6
Materials, Tools, and Machines	1	65%	64%	1
Transportation Technologies	5	56%	52%	4

CU306 MCAS District Results by Standards

Test Item Analysis Summary

School and district staff who want to review individual items to identify and/or confirm trends observed at the school level (and that may have been observed at the district level), or who want to access to questions associated with released items, should use Edwin Analytics report IT401, **MCAS School Test Item Analysis Summary**. (Note that IT301, District Test Item Analysis Summary, provides similar data at the district level.) Columns are provided for the tested

standard, average item score (percent correct) for school, district, and state, and the difference between school/state percent correct. For each item, the report also includes the percentage of student responses for each answer choice, the correct answer (on released items), and the curriculum frameworks strand/topic or domain/cluster. On the far left is a hyperlink to the released item.

In the example below, selected from a school in the same district used in the prior example, student performance on the *Life Science* strand appears mixed, with students performing higher than the state average on moderate to easy items (3, 14, and 26) while performing lower than the state average on more difficult items (15, 23, and 25). In this example, teachers and instructional leaders might use the report to investigate potential areas of misalignment between school curriculum and state standards, and to initiate a discussion about differences between instructional materials and methods associated with high percent-correct items and those used for low percent-correct items.

Sample School Test Item Analysis Summary Report (Grade 8 STE)

Item No.	Item Type	Tested Standard	Average Item Score				Percentage of Student Responses					Correct MC			
			School	District	State	Diff.	Blank/0	A/1	B/2	C/3	D/4	Answer	Strand	Topic	
1	MC	3.2	90%	90%	83%	7	0	1	1	8	90	D	Technology/Engineering (preK-8)	Communication Technologies	
2	MC	5	72%	72%	75%	-3	0	14	4	11	72	D	Earth and Space Science (preK-8)	Earth's History	
3	MC	2	83%	83%	73%	10	0	84	3	1	13	A	Life Science (preK-8)	Structure and Function of Cells	
4	MC	5.2	50%	50%	52%	-2	0	4	3	50	44	C	Technology/Engineering (preK-8)	Construction Technologies	
5	MC	5	65%	65%	65%	0	0	0	65	7	28	B	Physical Sciences (preK-8)	Elements, Compounds, and Mixtures	
6	MC	3	81%	81%	82%	-1	0	11	7	2	81	D	Earth and Space Science (preK-8)	Heat Transfer in the Earth System	
7	MC	7	73%	73%	68%	5	0	18	73	4	5	B	Earth and Space Science (preK-8)	Earth's History	
8	MC	10	71%	71%	78%	-7	0	71	7	10	13	A	Physical Sciences (preK-8)	Elements, Compounds, and Mixtures	
9	MC	4.1	92%	92%	86%	6	0	3	92	3	2	B	Technology/Engineering (preK-8)	Manufacturing Technologies	
10	MC	6	83%	83%	68%	15	0	3	6	83	9	C	Earth and Space Science (preK-8)	Earth's History	
11	MC	2.4	85%	85%	85%	0	0	85	10	1	4	A	Technology/Engineering (preK-8)	Engineering Design	
13	MC	10	81%	81%	73%	8	0	81	10	5	5	A	Earth and Space Science (preK-8)	The Earth in the Solar System	
14	MC	5	79%	79%	67%	12	0	6	3	13	79	D	Life Science (preK-8)	Systems in Living Things	
15	MC	12	51%	51%	63%	-12	0	14	17	17	51	D	Life Science (preK-8)	Evolution and Biodiversity	
16	MC	6.3	89%	89%	84%	5	0	7	89	3	1	B	Technology/Engineering (preK-8)	Transportation Technologies	
17	MC	15	53%	53%	54%	-1	0	53	15	9	23	A	Physical Sciences (preK-8)	Heat Energy	
18	MC	3.4	77%	77%	75%	2	0	5	77	10	9	B	Technology/Engineering (preK-8)	Communication Technologies	
19	MC	9	83%	83%	80%	3	0	15	83	0	3	B	Earth and Space Science (preK-8)	The Earth in the Solar System	
20	MC	11	82%	82%	72%	10	0	13	4	2	82	D	Earth and Space Science (preK-8)	The Earth in the Solar System	
22	MC	3	78%	78%	67%	11								Physical Sciences (preK-8)	Properties of Matter
23	MC	11	57%	57%	70%	-13								Life Science (preK-8)	Evolution and Biodiversity
24	MC	2.3	81%	81%	65%	16								Technology/Engineering (preK-8)	Engineering Design
25	MC	16	47%	47%	50%	-3								Life Science (preK-8)	Energy and Living Things
26	MC	13	81%	81%	73%	8								Life Science (preK-8)	Living Things and Their Environment
27	MC	8	29%	29%	46%	-17								Physical Sciences (preK-8)	Elements, Compounds, and Mixtures

IT401 MCAS School Test Item Analysis Summary

Users may also find distracter analysis useful when many students select the same incorrect response. When high percentages of students select the same incorrect answer, further inquiry is appropriate to determine whether students misread the question, misunderstood particular concepts, and/or applied concepts incorrectly. See student responses to item 4 in the table above for an example of a distracter response. On that item, while 50% of students chose the correct answer, C, an almost equal percentage (44%) chose the incorrect, distracter answer, D. Assessment coordinators and others focused on improving student achievement may want to review distracter responses to help identify causes and make adjustments to curriculum, instruction, and/or test-taking strategies.

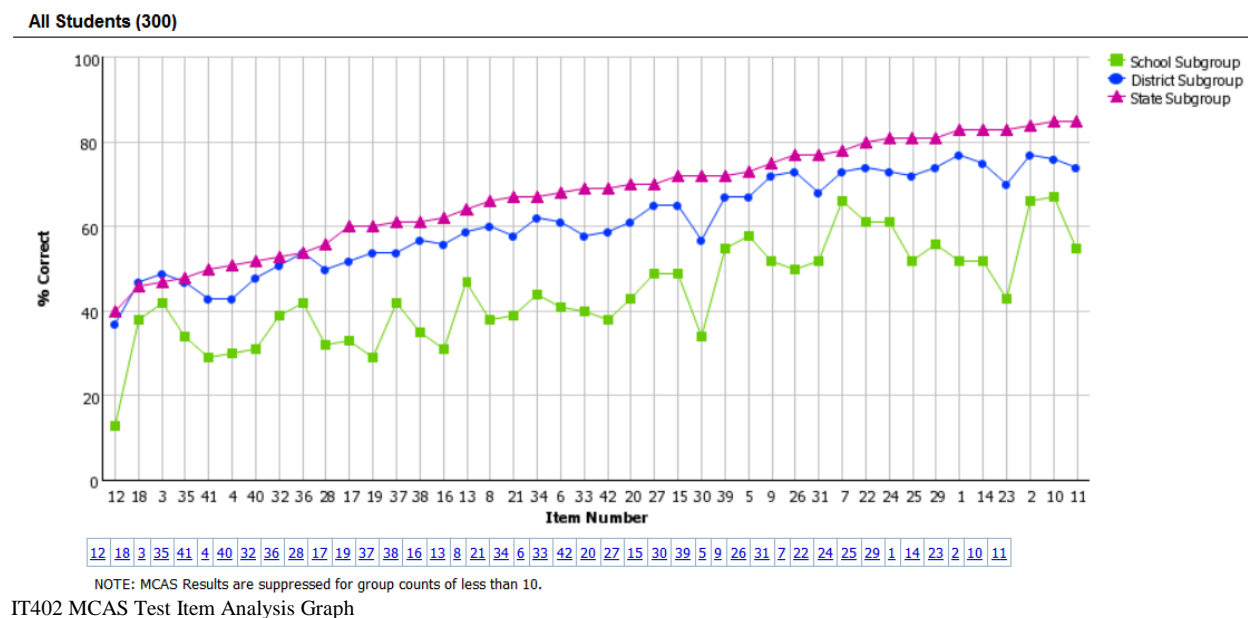
Test Item Analysis Graph

The **School Test Item Analysis Graph** (IT402) is another useful tool for item analysis. When sorted by state score (i.e., item difficulty), the graph shows how well students at the school and district performed across the difficulty spectrum from most- to least-difficult items. (Note that IT302, District Item Analysis Graph, provides similar data at the district level.)

The graph below depicts a school in a district with multiple schools at the tested grade. The line of connected points for the school, when compared to the district's line, can help guide an inquiry into the potential cause(s) of performance gaps. For example, parts of the graph in which the school's line approximates that of the district, such as items on the far left (35, 41, 4, 40, 32, and 36), indicate potential district-wide weaknesses in curriculum, instruction, or other curriculum-related supports **on the most difficult items**. On the other hand, parts of the graph on the far right, where the school and district lines diverge (items 9, 26, 31, 22, 25 and 1), indicate weaknesses **on the least difficult items** that are unique to the school. In both cases, curriculum specialists are encouraged to have discussions with teachers and instructional leaders at the appropriate level (school and/or district) to conduct further inquiry.

Lines connecting data points on the graph can help reveal areas in which groups of items at the school or district level departed significantly from the state line, and whether low- or high-performing items were localized at the individual school level or district level.

Sample School Test Item Analysis Graph Report (Grade 7 Mathematics)



Comparing Student Groups to the State Average

The two tables that follow show the percentage of students at the state level who answered each multiple-choice item correctly. Schools and districts may wish to use this information to compare

the percentage of their students (or students in one or more subgroups) answering an item correctly with the percentage of students statewide. Experienced Excel users will be able to calculate school percent-correct values using the “countif” function. Please note that on June 21, comparative data in the tables below will be available in Edwin Analytics.

Spring 2013 MCAS Mathematics Tests: Percentage of Students Statewide Who Answered Multiple-Choice Items Correctly, by Grade Level

Item number	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 10
Item1	94%	89%	93%	49%	81%	85%	78%
Item2	84%	75%	74%	75%	80%	73%	69%
Item3		97%	77%	74%	63%	72%	74%
Item4	64%	67%		85%	64%	44%	68%
Item5	76%	89%		58%	55%	70%	58%
Item6	88%		78%				70%
Item7	82%		86%			57%	86%
Item8		75%	64%	69%	73%	49%	74%
Item9	86%	75%	46%	47%	64%		68%
Item10	86%	80%	74%	54%	70%	62%	79%
Item11	65%	68%	88%		78%		62%
Item12		74%	89%	56%	63%	88%	48%
Item13		95%	79%	52%	61%	78%	68%
Item14	90%	78%	81%	55%	70%	90%	76%
Item15	44%	70%	69%	86%		83%	
Item16	43%	86%	85%	91%	43%	54%	
Item17	87%	65%			46%		
Item18						45%	
Item19	79%			89%	84%	74%	
Item20	73%	79%	61%	59%	73%		
Item21	76%		57%	62%		63%	
Item22	93%	81%	87%	85%	74%	74%	87%
Item23		73%	73%	76%	84%	65%	76%
Item24		89%	74%	86%	57%	84%	63%
Item25	69%		82%		43%	39%	53%
Item26			94%		44%	84%	73%
Item27	63%	70%		83%			55%
Item28	74%	90%		88%	52%		77%
Item29	93%	94%	78%	74%	74%	78%	49%
Item30	80%		85%	92%		70%	77%
Item31	73%	95%	63%	89%		53%	
Item32		78%		84%	87%	80%	70%
Item33		71%	58%	72%	77%	80%	72%
Item34	70%	47%	84%	78%	90%	66%	86%
Item35	77%	67%	75%	65%	88%	93%	35%
Item36	62%		81%	63%	38%	89%	74%

Item number	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 10
Item37					68%		47%
Item38		83%	79%		67%		82%
Item39		93%	59%	70%		85%	82%
Item40		59%	69%	74%		78%	53%
Item41		78%	69%	62%	89%	44%	
Item42		74%			71%		
Number of students tested	69,512	69,548	69,593	70,394	70,773	71,122	67,598

Spring 2013 MCAS Science and Technology/Engineering Tests: Percentage of Students Statewide Who Answered Multiple-Choice Items Correctly, by Grade Level

Item number	Grade 5	Grade 8
Item1	71%	84%
Item2	54%	71%
Item3	69%	75%
Item4	67%	66%
Item5	90%	71%
Item6	70%	57%
Item7	69%	52%
Item8	59%	77%
Item9	92%	
Item10		
Item11	44%	72%
Item12	69%	74%
Item13	79%	73%
Item14	86%	46%
Item15	48%	69%
Item16	78%	84%
Item17	68%	90%
Item18	62%	47%
Item19	67%	49%
Item20	68%	57%
Item21		63%
Item22	93%	80%
Item23	91%	86%
Item24	62%	78%
Item25	54%	44%
Item26	73%	56%
Item27	83%	88%
Item28	49%	52%
Item29	72%	56%
Item30		86%

Item number	Grade 5	Grade 8
Item31	89%	67%
Item32	89%	85%
Item33	60%	92%
Item34	82%	36%
Item35	87%	89%
Item36	70%	89%
Item37	89%	67%
Item38	85%	51%
Item39	86%	54%
Item40	84%	50%
Item41	77%	
Item42		
Number of students tested	69,616	71,007

When comparing the performance of groups or subgroups of students to statewide students, you may also want to review item-level past performance data. Item-level data for previous MCAS administrations can be accessed by visiting the School and District Profiles on the Department’s website. Select your school or district, click the Assessment tab, and click the link to Item by Item Results (for each Grade/Subject).

Estimating Student Performance on the Entire Test Using Multiple-Choice Results

The multiple-choice test items represent 65 percent of the total points available on the grade 3 Mathematics test, 59 percent on the grades 4–8 Mathematics tests, 53 percent on the grade 10 Mathematics test, and 70 percent on the grades 5 and 8 STE tests. Performance on the multiple-choice portion is strongly correlated with performance on the constructed-response portion (short-answer and/or open-response items); however, there are exceptions, including students who do not respond to constructed-response questions and students who perform their best on questions where they are expected to show their work.

The tables on the following pages can help schools and districts interpret the multiple-choice results of each student. When using the tables, be careful to consider the information in its full context. For example, the following language could be used: “Jane’s multiple-choice performance on the grade 5 math test was similar to the performance of students in the upper level of the *Proficient* category whose scaled scores range from 250 to 258”; or “the multiple-choice scores of half of our grade 5 students in 2013 were similar to those of students in the state who are *Proficient* or higher.” By framing the information with words like “similar” and specifying that only multiple-choice results are being evaluated, users can avoid over-interpreting the results. Precise threshold scores for each achievement level will be established in August when the constructed-response results are available.

Individual results will vary depending on the results from the short-answer and open-response sections of the tests. In all but the most extreme cases, a student’s final achievement

The following tables should be used only to approximate student achievement levels.

level will be in the corresponding category listed below or in one of the adjacent categories. Students at the upper or lower end of the raw score range are more likely to fall into an adjacent category than those in the middle of the range.

**Spring 2013 MCAS Mathematics Tests
Multiple-Choice Score and Likely Achievement Level**

Total Score on Multiple-Choice Items	Likely Achievement Level, Based on Multiple-Choice Items
Grade 3	
0–12	<i>Warning</i> (200–218)
13–17	<i>Needs Improvement</i> (220–238)
18–22	<i>Proficient</i> (240–258)
23–26	<i>Advanced</i> (260–280)
Grade 4	
0–7	Low <i>Warning</i> (200–208)
8–15	High <i>Warning</i> (210–218)
16–20	Low <i>Needs Improvement</i> (220–228)
21–25	High <i>Needs Improvement</i> (230–238)
26–28	Low <i>Proficient</i> (240–248)
29	High <i>Proficient</i> (250–258)
30–31	Low <i>Advanced</i> (260–268)
32	High <i>Advanced</i> (270–280)
Grade 5	
0–7	Low <i>Warning</i> (200–208)
8–15	High <i>Warning</i> (210–218)
16–19	Low <i>Needs Improvement</i> (220–228)
20–22	High <i>Needs Improvement</i> (230–238)
23–25	Low <i>Proficient</i> (240–248)
26–27	High <i>Proficient</i> (250–258)
28–30	Low <i>Advanced</i> (260–268)
31–32	High <i>Advanced</i> (270–280)
Grade 6	
0–7	Low <i>Warning</i> (200–208)
8–14	High <i>Warning</i> (210–218)
15–18	Low <i>Needs Improvement</i> (220–228)
19–21	High <i>Needs Improvement</i> (230–238)
22–24	Low <i>Proficient</i> (240–248)
25–27	High <i>Proficient</i> (250–258)
28–30	Low <i>Advanced</i> (260–268)
31–32	High <i>Advanced</i> (270–280)
Grade 7	
0–7	Low <i>Warning</i> (200–208)
8–14	High <i>Warning</i> (210–218)
15–18	Low <i>Needs Improvement</i> (220–228)
19–21	High <i>Needs Improvement</i> (230–238)

Total Score on Multiple-Choice Items	Likely Achievement Level, Based on Multiple-Choice Items
22–24	Low <i>Proficient</i> (240–248)
25–27	High <i>Proficient</i> (250–258)
28–30	Low <i>Advanced</i> (260–268)
31–32	High <i>Advanced</i> (270–280)
Grade 8	
0–7	Low <i>Warning</i> (200–208)
8–15	High <i>Warning</i> (210–218)
16–19	Low <i>Needs Improvement</i> (220–228)
20–21	High <i>Needs Improvement</i> (230–238)
22–24	Low <i>Proficient</i> (240–248)
25–27	High <i>Proficient</i> (250–258)
28–30	Low <i>Advanced</i> (260–268)
31–32	High <i>Advanced</i> (270–280)
Grade 10	
0–5	Low <i>Failing</i> (200–208)
6–9	High <i>Failing</i> (210–218)
10–13	Low <i>Needs Improvement</i> (220–228)
14–16	High <i>Needs Improvement</i> (230–238)
17–19	Low <i>Proficient</i> (240–248)
20–22	High <i>Proficient</i> (250–258)
23–28	Low <i>Advanced</i> (260–268)
29–32	High <i>Advanced</i> (270–280)

**Spring 2013 MCAS Science and Technology/Engineering Tests
Multiple-Choice Score and Likely Achievement Level**

Total Score on Multiple-Choice Items	Likely Achievement Level, Based on Multiple-Choice Items
Grade 5	
0–8	Low <i>Warning</i> (200–208)
9–18	High <i>Warning</i> (210–218)
19–23	Low <i>Needs Improvement</i> (220–228)
24–27	High <i>Needs Improvement</i> (230–238)
28–31	Low <i>Proficient</i> (240–248)
32–33	High <i>Proficient</i> (250–258)
34–36	Low <i>Advanced</i> (260–268)
37–38	High <i>Advanced</i> (270–280)
Grade 8	
0–8	Low <i>Warning</i> (200–208)
9–17	High <i>Warning</i> (210–218)
18–23	Low <i>Needs Improvement</i> (220–228)
24–27	High <i>Needs Improvement</i> (230–238)
28–32	Low <i>Proficient</i> (240–248)

Total Score on Multiple-Choice Items	Likely Achievement Level, Based on Multiple-Choice Items
33–35	High <i>Proficient</i> (250–258)
36	Low <i>Advanced</i> (260–268)
37–38	High <i>Advanced</i> (270–280)